

144/430/440MHz FM DUAL BANDER

TM-G707A/E

SERVICE MANUAL

KENWOOD

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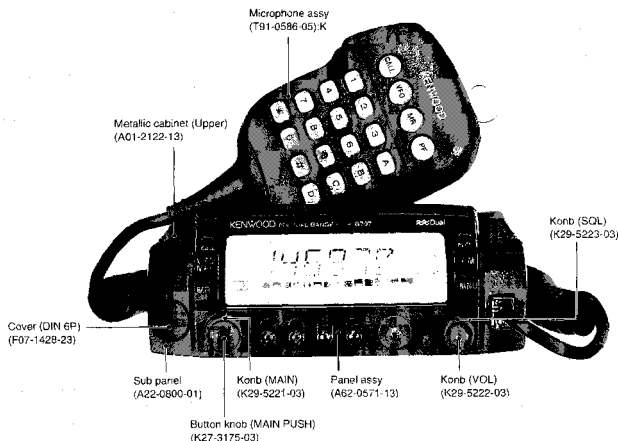


Photo is K Type

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TM-G707A/E

CIRCUIT DESCRIPTION

Outline

This device is a dual-band 144/430MHz FM car transceiver planned and designed for amateur radio communications and has the following features.

1. The display backlighting uses ultra-high brightness yellow LEDs. The display is a 13-segment positive type.
2. The main unit is 40x140 mm. The detachable operation panel is 51.5x105 mm.
3. 180 channels in memory.
4. The chassis is diecast aluminum with the heat radiation fins formed into one piece with the chassis.
5. Built-in CTCSS functions with 38 different selectable tones.
6. Data terminal having 1200 bps/9600 bps packet communication and computer interface.
7. Audio announce mode that announces the display frequency, name of the key pressed, etc. (when VS-3 option installed)

List of Destinations

Model		Guarantee frequency range (MHz)		Output power (W)	
		144	430	144	430
TM-G707A	K	144~148 ¹	438~450	50 ²	35 ²
	M2		430~440		
TM-G707E	M4	144~148	430~440	50	35
	E3		430~440		

¹ Taiwan : 144 ~ 146 MHz

² Taiwan : 25 W (both bands)

Accessories

Parts name	Parts No.	Q'ty	Destination
Warranty card	-	1	K,E,E3
Instruction manual	-	-	all
DC cord	E30-2111-15	1	all
Fuse (15A)	F51-0017-05	1	all
Microphone	T91-0399-05	1	M2,M4,E,E3
Microphone (DTMF)	T91-0586-05	1	K
Mobile bracket	J29-0632-13	1	all
Screw set	N99-0331-05	1	M2,M4,E,E3
Screw set	N99-0382-05	1	K
Microphone hanger	J19-1526-04	1	K

Units for Each Model and Destination

Model		TX-RX UNIT (A/B,C/D)	LCD ASSY
TM-G707A	K	X57-5570-11	B38-0797-XX
	M2	X57-5570-22	
	M4	X57-5570-24	
TM-G707E	E	X57-5572-71	
	E3		

CIRCUIT DESCRIPTION

Frequency configuration

Since the TM-G707A/E uses the same PLL and IF for both the VHF and UHF band, these sections are used switching bands.

The 144MHz band reception system is mixed down with the 1st local frequency 182.850 MHz to 184.845 MHz (E), 182.850 MHz to 186.845 MHz (K, M) to make the 1st intermediate frequency of 38.85 MHz. This frequency is further mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz.

The 430MHz band reception system is mixed down with the 1st local frequency 391.150 MHz to 401.145 MHz (M, E), 399.150 MHz to 406.145 MHz (K) to make the 1st intermediate frequency of 38.85MHz. This is mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz. Thus, the reception systems form a double conversion system with two intermediate frequencies.

The transmission system uses direct oscillation for both the 144MHz and the 430MHz band and is made up of a PLL circuit formed through direct frequency division. Signals are amplified with straight amps and transmitted.

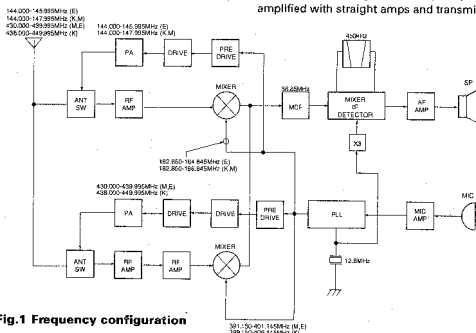


Fig.1 Frequency configuration

PLL synthesizer section

The VCO section is in the shielding case and the PLL section is on the TX-RX board. The 12.8MHz reference oscillator (X1) is oscillated with the PLL IC (IC1). The 5kHz and 6.25kHz reference frequencies are obtained by frequency dividing this signal.

5kHz, 10kHz, 15kHz, 20kHz, 6.25kHz, 12.5kHz, 25kHz, and 50kHz step PLL synthesizers are configured through phase comparison with the reference frequencies obtained by frequency dividing HT. The VHF VCO is configured with one PLL IC by using a switch. For VHF, PLL (analog switch) is

switched to the VHF side and D1 comes on. For UHF, IC2 is switched to the UHF side and D2 comes on. In this way, the two groups are formed. For VHF-band reception, oscillation is 182.85 to 184.845MHz (E), 182.85 to 186.845MHz (K, M) and for transmission, oscillation is 144.00 to 145.995MHz (E), 144.00 to 147.995MHz (K, M).

For UHF band reception, oscillation is 384.95 to 394.945MHz (M, E), 392.95 to 404.945MHz (K) and for transmission, oscillation is 430 to 439.995MHz (M, E), 430.00 to 449.995MHz (K).

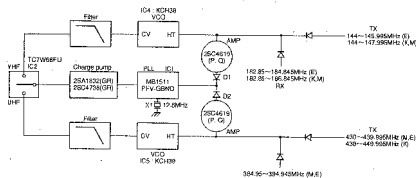


Fig.2 PLL synthesizer circuit

CIRCUIT DESCRIPTION

Unlock Detect Circuit

The signal whose phase has been compared from the PLL IC (IC1) is output, goes through the waveform circuit, and is input to the microprocessor. If the level after waveforming is low, the microprocessor judges this to be the unlock signal

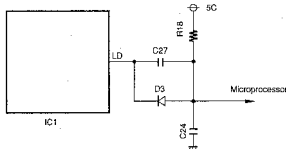


Fig.3 Unlock detect circuit

Transmit Circuit

●Outline

The transmitter directly oscillates the target frequency with the dedicated 144MHz band and 430MHz band VCO and amplifies to the target power. Frequency modulation is applied directly with a variable-capacity diode.

●Modulation circuit

In the control unit, the audio signals are amplified and limited and passed through a splatter filter, then mixed with subtones from the microprocessor, and directly frequency modulated by a VCO (144MHz band: IC4; 430MHz band: IC5) with a variable-capacity diode.

●Younger stage circuit

The signals from the PLL unit are input to the drive circuit (144MHz band: Q16, Q18, 430MHz band: Q15, Q17, Q19). The drive amps carry out stable amplification over a broad band without regulation and can obtain adequate output to drive the final module.

and does not transmit and does not send the transmission signals to the shift registers. The microprocessor also generates the beep to announce the unlocking. Unlocking is announced in the same manner for reception too.

●APC circuit

The automatic transmission output control circuit (APC) uses a differential amplifier circuit (IC6) to compare and amplify the reference voltage that forms the CPU PWM output and the DC voltage that detects part of the transmission power with diodes (VHF: D20 and D23; UHF: D19 and D21) and for that output controls the DB voltage with a preamp (Q21) and control transistor (Q20) and holds the transmission output constant.

Six sets of PWM data, high-, medium-, and low-power each for VHF and UHF are stored into EEPROM memory (IC511) and for each power condition, the data is extracted from the EEPROM to control the power.

The PWM output from the CPU is used as the BPF tuning voltage for reception.

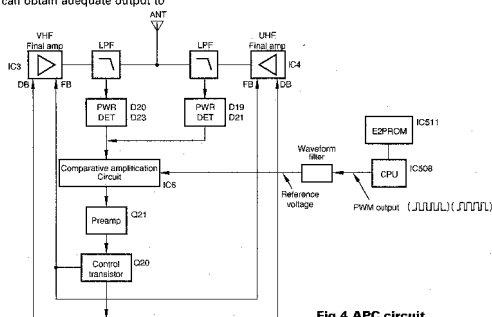


Fig.4 APC circuit

CIRCUIT DESCRIPTION

Reception Circuit

●144MHz Band

After the 144MHz antenna input signals pass through the final section antenna switching diode, they go through the front section tuning coil for matching and tuning are amplified with the GaAs field effect transistor. The unwanted signal is eliminated with a band pass filter made up of a 2-stage variable-capacity diode tuning and the result goes to the first mixer. The variable-capacity tuning comprises three stages. The tuning voltage is supplied from the microcomputer. For the tuning voltage, the PWM used for APC during transmission is switched to use for tuning for reception. In the first mixer, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, then the unwanted proximate signal is eliminated in the 2-stage MCF.

The first intermediate frequency signal is amplified and input to the FM IC (IC8). This intermediate frequency signal is mixed with the second local oscillator frequency of 38.4MHz to make the second intermediate frequency of 450kHz and

after the unwanted proximate signal is eliminated with an FM ceramic filter. The signal is input to IC8 again. Here, second intermediate frequency is amplified and detection are carried out to form the audio signal. From the IF (38.85 MHz) stage onward, the circuits are shared with the 430MHz band and switched for each band.

●430MHz Band

After the 430MHz antenna input signals pass through the final section antenna switching diode, they go through the front section matching coil, are amplified with the GaAs field effect transistor, go through a divider, go through a SAW filter to eliminate the unwanted signal and the result is input to the first mixer. Here, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, from the IF stage onward, the circuits are shared with the VHF reception circuit.

Item	Rating
Center Frequency	38.85MHz
Pass band width	$\pm 7.5\text{kHz}$ or more at 3dB
Attenuation band width	$\pm 25\text{kHz}$ or less at 36dB $\pm 45\text{kHz}$ or less at 58dB
Guaranteed attenuation	80dB or more within $\pm 1\text{MHz}$ (Spurious: 40dB or more within $\pm 1\text{MHz}$)
Ripple	1dB or less
Insertion loss	3dB or less
Termination impedance	$550\Omega \pm 10\%$, $2.5\text{pF} \pm 0.5\text{pF}$

MCF (L71-0481-05)(TX-RX Unit XF1)

Item	Rating
Nominal center frequency	450kHz
6dB band width	$\pm 7.5\text{kHz}$ or more (from 450kHz)
50dB band width	$\pm 15.0\text{kHz}$ or more (from 450kHz)
Ripple	3dB or less (within 450 $\pm 5\text{kHz}$)
Insertion loss	6dB or less (at minimum lost point)
Guaranteed attenuation	35dB or more (within 450 $\pm 100\text{kHz}$)
I/O matching terminating impedance	

Ceramic filter (L72-0931-05)(TX-RX Unit CF1)

S Meter Circuit

S meter output voltage from the FM IC (IC8) is connected to the control unit and A/D converted by the CPU to drive the LCD bar meter.

Squelch Circuit

The squelch control angle is read into the panel section microprocessor and converted from analog to 6-bit digital. For adjustment mode, on the main unit side, the threshold level signal is received and the SQ voltage at that time are stored into the microprocessor. The microprocessor calculates the squelch release voltage using this voltage as the reference. This voltage and the panel section squelch control voltage are compared and the squelch switched ON and OFF.

Shift Register Circuits

The TX-RX units have a shift register (IC7) and carry out the control of the right figure.

Pin No.	Name	Function
1	E	GND
2	DTS	Serial data input
3	CK	Clock
4	8R SW	U/V RX Power SW
5	UTX SW	UHF TX Power SW
6	VTX SW	VHF TX Power SW
7	8CU SW	UHF Power SW
8	8CV SW	VHF Power SW
9	14R SW	VHF RX SW
10	VAIP SW	VHF AIP SW
11	UAIP SW	UHF AIP SW
12	80R SW	
13	43R SW	UHF Power SW
14	36R SW	
15	USHIFT	UHF VCO Shift SW
16	5C	VDD

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CIRCUIT DESCRIPTION

AF Signal System

After the RD detection signal from the FM IC (IC8) enters the base band (IC506), it is combined with the VO signal from the audio synthesis unit and the beep and DTMF signals from the CPU and goes into the electronic control. The electronic control has two channels, one of which is used for the internal speaker (AO1) and the other of which is used for the speaker mic (AO0). The audio signals whose levels have been adjusted by the electronic control pass through the mute circuit, are amplified by the power amp (IC207), and are output to the built-in speaker and the speaker mic.

(K type has no speaker microphone circuit)

Beep Circuit, Mute Circuit

When a key is pressed, the beep sound is output from Pin 46 of the microcomputer. While the beep sound is output, the RD signal is muted within the base band IC. In the same manner, while VO signals or DTMF signals are output, the RD signal is muted within the base band IC.

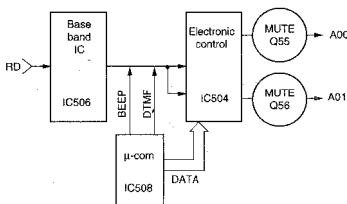
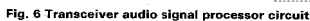


Fig. 5 AF Block Diagram

Mic Amp Circuit (Refer to Fig.6)

The audio signals from the microphone are impedance matched and enter AK2343 (IC506). AK2343 comprises a 2-stage amp, mute circuit, band pass filter circuit, limiter circuit, and splatter filter circuit. It provides the audio signal amplification and preemphasis characteristic. During data transmission from the DATA terminal, the IC507 mute switch

is switched off to mute audio signals from the mic. The level for the mic amp output is set with the electronic control (IC504). The modulation circuits are directly connected with the VCO variable-capacity diode for the 144MHz band and the VCO variable-capacity diode for the 430MHz band and apply frequency modulation.



TM-G707A/E

CIRCUIT DESCRIPTION

Digital Control Circuit (Refer to Fig.6)

The digital control section controls each function with one microprocessor (IC508) and comprises the subtone signal, DTMF encode and DTMF decode circuit (IC505), the electronic control circuit (IC504), the analog signal select switch (IC507), and the base band circuit (IC506). The reset and backup circuits, mic amp circuit, and microphone key input circuit are also included in the control unit.

Data Communications Between Panel and Control Unit

Figure 7 shows the control unit data communication circuits. SI is the serial data in and SO is the serial data out. There are Buffer amplifiers for protecting the microprocessor board.

Data communication is asynchronous, with a communications speed of 19200 bps. The control unit side microprocessor checks the connection once every 0.5 second and if the connection is NG twice in a row, in other words if the panel section is removed for more than one second, the power is cut off.

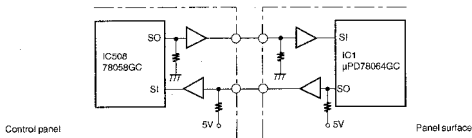


Fig. 7 Circuit for Data Communications Between Panel and Control Unit

Speaker Switching Circuit (Refer to Fig.6)

Each of the AF signals, AO0 and AO1, is input to one of the two independent power amps (IC1: LA4446). Switching between the internal speaker and external speaker is controlled by the electronic control (IC504) and the mute circuit of Q55 and Q56.

Tone Output Circuit (Refer to Fig.6)

The tone signals (38 waves within 67.0 to 250.3Hz) are output from ANO0 of the microprocessor (IC508) analog output port.

●DTMF decode signals

The DTMF signals from a mic with DTMF (M2, E, E3 : optional), go into the DTMF decoder IC (IC505 : LC73881M). When a valid tone pair is detected, STD of the DTMF decoder IC goes high. This is input to the P56 port of the microprocessor (IC508), the serial clock is output from P54 of the microprocessor to the DTMF decoder IC, and the serial data is sent to the P55 port of the microprocessor.

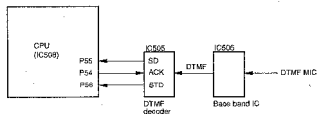


Fig.8 DTMF decode circuit

CIRCUIT DESCRIPTION

Reset and Backup Circuits

When power is supplied to the set, the reset circuit generates a delay in the reset IC (IC503: PST9130NR) and the delay signal is input to the reset terminal of the main unit microprocessor to carry out a power ON reset. When the power voltage drops, the voltage is detected and the reset signal is generated.

The reset switch circuit resets the main unit microprocessor when the reset switch (S501) is pressed. The microcomputer checks the RST port level after reset is performed. If the switch is released within 1 second (when RST port has set to LOW level) at this time, then operation is the same as VFO reset (VFO+POWER ON). However, if the switch is pressed for longer than 1 second (RST port has set to HIGH level for more than 1 second), then operation is the same as ALL reset (MR+POWER ON). The RST port is normally low. The backup circuit detects any voltage drop in the power supply voltage 13.8V line and sets B CHCK of the microprocessor high, causing the microprocessor to send the backup data to the EEPROM (IC511) and go into STOP mode to reduce power consumption.

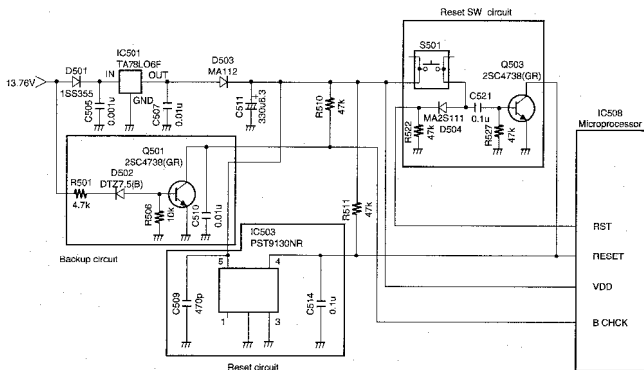


Fig.9 Reset backup circuit

CIRCUIT DESCRIPTION

●Reception signals

PR9 is the 9600bps data communications reception output. It outputs the FM detection circuit output (RD signals) through a buffer amp (Q505 : 2SC4738 (GR)). These signals are always output whether the squelch is open or closed.

PR1 is the 1200bps data communications reception output. It outputs the FM detection circuit output (RDT signals) through a buffer amp (Q506 : 2SC4738 (GR)). Output is controlled with the analog switch (IoC of IC507) according to whether squelch is open or closed.

●Squelch signal output circuit (Refer to Fig.6)

The squelch circuit is input to the TNC to prevent conflicts from occurring between simultaneous receive mode and transmit mode traffic during packet communications. (only during 1200bps) The signal is output from Pin 12 of IC510 to the data terminal. The logic is as shown in the Table below.

SQC terminal output	L:SQ CLOSE
(J 501 Pin 6)	H:SQ BUSY

Panel Section (LCD ASSY: B38-0797-35)

The panel section controls serial communications with the main unit control section, the key input circuit, the display circuit, and the dimmer circuit through the microprocessor (IC1).

●Serial communications circuit

A buffer amp is inserted in order to protect the microprocessor ports.

●Key, Volume input circuit

Circuits to operate the panel section keys are connected to each microprocessor port. The PSW key is pulled down and the other keys are pulled up with software within the microprocessor. Rotary encoder operating circuits are connected directly to the microprocessor. The control divides the power supply voltage, reads the A/D port of the microprocessor, and transfers that data to the main unit.

●Display circuit

The display is a 13-segment positive type. The segments are controlled directly by drivers in the microprocessor.

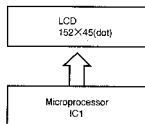


Fig.11 Display circuit

●Dimmer circuit

The dimmer circuit switches the lamp brightness to one of four levels or OFF. (See table) the current flowing to the LEDs is varied by selecting resistors from R36 to R41.

R42 is for adjusting for variation in the brightness of the LED. R42 is adjusted at the factory so that the brightness at the center of the LED is $24 \pm 5 \text{ cd/m}^2$.

Dimmer level	P100	P101	P102	P103
1	H	L	L	L
2	L	H	L	L
3	L	L	H	L
4	L	L	L	H
OFF	L	L	L	L

Port logic

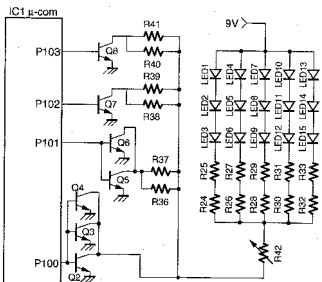


Fig.12 Dimmer circuit

ACCESSORY MICROPHONE T91-0586-05 : K type (MC-53DM)

EXTERNAL VIEW



PARTS LIST

Ref. No.	Address	New Parts	Parts No.	Description
			A02-1982-08	CASE (FRONT)
			A02-1983-08	CASE (REAR)
			E30-3240-08	MICROPHONE CORD ASSY (MODULE)
			K29-5101-08	KNOB (PTT)
			K29-5102-08	KNOB (UP/DOWN)
			K29-5103-08	KEY TOP (20KEY)
			K29-5104-08	KNOB (LOCK)
SW2.4	-		S40-1117-05	TACT SWITCH (UP/DOWN)
SW2	-		S23-0441-08	SLIDE SWITCH (LOCK)
SW1	-		S70-0450-08	TACT SWITCH (PTT)
			T91-0570-08	MICROPHONE ELEMENT
IC1			LR40872	IC
Q1-3			2SC1623	TRANSISTOR

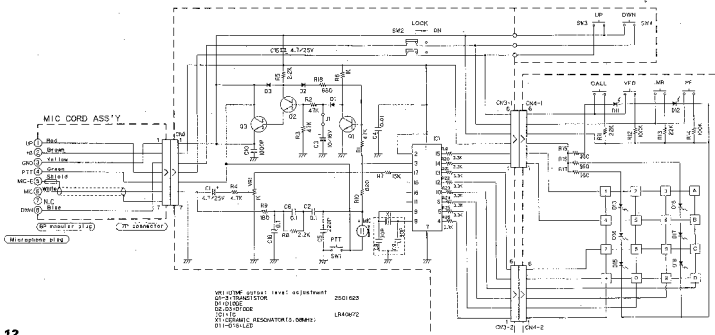
SPECIFICATIONS

Type	Electret capacitor
Power requirement	8.0 V DC \pm 10%
Current drain	35 mA or less
Sensitivity	-72 \pm 3 dB (at 1 kHz) (0 dB = 1 V/0.1 pa)
Impedance	900 Ω \pm 30% (at 1 kHz)

ADJUSTMENT

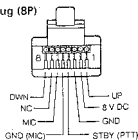
Item	Condition	Test equipment/Measurement	Adjustment	Specifications/Remarks
DTMF output level	[3] [5] key at same time push	AF VTVM BP Modulator 0V (0V)	VR1	24mV \pm 0.01mV

SCHEMATIC DIAGRAM



CONNECTOR END VIEW

Moduler plug (8P)



ACCESSORY MICROPHONE T91-0396-05 : E, M type (MC-45)

Ref. No.	Address	New Parts	Parts No.	Description
			A02-0836-08	CASE (FRONT)
			A02-0900-08	CASE (REAR)
			E30-3006-08	CURL CORD ASSY
			G13-0933-08	CUSHION (UP,DWN)
			K29-3165-08	KNOB (PTT)
			K29-3168-18	KNOB (UP)
			K29-3169-18	KNOB (DWN)
			K29-3170-08	KNOB (CALL VFO, MR, PF)
			S58-1403-28	SWITCH ASSY (UP,DWN)
			A04-1431-08	TACT SWITCH (CALL VFO, MR, PF)
			A04-1437-08	TACT SWITCH (UP,DWN)
			S50-1431-08	MICRO SWITCH LOCK
			S31-1422-08	SLIDE SWITCH LOCK
SW3-6			TS1-0383-08	MICROPHONE ELEMENT
SW7/8				
SW1				
SW2				

Type	Electret capacitor
Power requirement	8.0 V DC \pm 10%
Current drain	0.6 mA or less
Sensitivity	-71.5 \pm 3.5 dB (at 500 Hz) (0 dB = 1 V/0.1 pa)
Impedance	3.1k Ω \pm 30% (at 1kHz)

1. Green
2. Yellow
3. Black
4. Red
5. Shield
6. Clear
7. NC
8. Blue
9. Shield
10. Clear
11. Black
12. Red
13. Blue
14. Yellow
15. Green

SW2 LOCK

SW1 PTT

(BLACK) GND

(RED) PTT

(BLUE) DWN

(GREEN) UP

(YELLOW) V+

C9 4.7μ

R1 2.2K

C1 0.033μ

C2 0.047μ

R2 2.2K

R3 180

ECM

CB 100p

J1

CALL S3

VFO S4

MR S5

PF S6

R10 22K

R7 100K

R8 22K

R9 100K

Modular BP Plug

MIC

MIC-E

(CLEAR or WHITE)

(SHIELD)

100V

SEMICONDUCTOR DATA

78P064GCJTUB (LCD DISPLAY ASSY CPU:IC1)

Pin No.	Port name	I/O	Function	Active Level
1	P11/ANI1	AI	AF VOL	-
2	P12/ANI2	AI	Photo transistor	-
3	P13/ANI3	AI	Dimmer reference	-
4	P14/ANI4	I	Dimmer detect terminal	-
5~7	P15~17/ANI5~7	-	Open	-
8	AVDD	-	VDD	-
9	AVREF	-	VDD	-
10, 11	P100, P101	O	Dimmer control1, 2	H
12	VSS	-	GND	-
13, 14	P102, P103	O	Dimmer control3, 4	H
15	P30/TO0	O	5C SW	-
16	P31/TO1	I	[BAND] key	L
17	P32/TO2	I	[PM] key	L
18	P33/TO1	I	[MENU] key	L
19	P34/TO2	I	[DIM] key	L
20	P35/PCL	-	Open	-
21	P36/BUZ	-	Open	-
22	P37	-	Open	-
23~26	COM0~3	O	LCD COM0~LCD COM3	-
27	BIAS	-	BIAS	-
28~30	VLC0~2	-	VLC0~VLC2	-
31	VSS	-	GND	-
32~55	S0~23	O	LCD S0~LCD S23	-
56~71	P97~P80/S24~39	O	LCD S24~LCD S39	-
72	P25/SIO/SB0	I	Main unit microcomputer communication SI	-
73	P28/SO0/SB1	O	Main unit microcomputer communication SO	-
74	P27/SCK0	-	Open	-
75	P70/SI2/RXD	-	Open	-
76	P71/SO2/TXD	-	Open	-
77	P72/SCK/ASCK	-	Open	-
78	IC	-	Open	-
79	X2	-	Clock oscillator connection (4.194304 MHz)	-
80	X1	-	Clock oscillator connection (4.194304 MHz)	-
81	VDD	-	VDD	-
82	XT1/P07	-	Open	-
83	XT2	-	Open	-
84	RESET	-	Reset input	-
85	P00/INTP0/TI00	I	Encoder clock	-
86	P01/INTP1/TI01	I	Main unit microcomputer communications request detect (connected to Pin 72)	-
87	P02/INTP2	I	[PWR] key	L
88	P03/INTP3	I	Encoder data	-
89	P04/INTP4	-	Open	-
90	P05/INTP5	-	Open	-
91	P110	I	[VFO] key	L
92	P111	I	[CALL] key	L
93	P112	I	[MR] key	L
94	P113	I	[MHz] key	L
95	P114	I	[F] key	L
96	P115	I	[TONE] key	L
97	P116	I	[REV] key	L
98	P117	I	[LOW] key	L
99	AVSS	-	GND	-
100	P10/ANI0	AI	Squelch VR	-

SEMICONDUCTOR DATA

I/O port specification

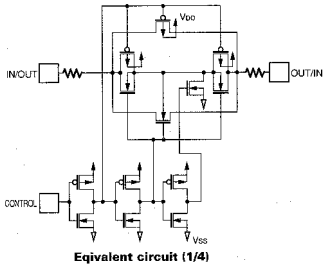
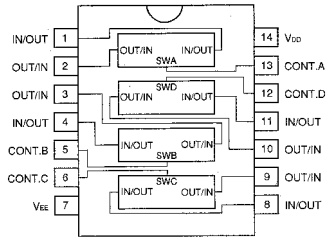
78058GC-A7X8BT (CONTROL UNIT CPU:IC508)

Pin No.	Port name	I/O	Function	Active Level
1		I	Open (connected to Vdd)	-
2	MIC DW	AI	MIC [DOWN] [MR] [PF] key	H:No operation,4.7V max;SP MIC 4.3V max; [PF] pressed,2.5V max; [MR] pressed,0.6V max; [DOWN] pressed
3	MIC UP	AI	MIC [UP] [CALL] [VFO] key	H:No operation,4.3V max; [VFO] pressed,2.5V max; [CALL] pressed,0.6V max; [UP] pressed
4	AVSS	-	A/D conversion circuit VSS terminal (connected to ground)	-
5	SUB TONE	O	Sub tone signal D/A output terminal	-
6	DTMF	O	DTMF signal D/A output terminal	-
7	AVREF1	-	D/A conversion circuit reference voltage terminal (connected to Vdd)	-
8	RXD/PS	I	RS-232C RxD terminal	-
9	TXD/SQC	O	RS-232C TxD terminal	-
10	MIC PTT	I	MIC [PTT] key	H:No operation,L:pressed
11	PLL EN	O	PLL enable	L:Enable
12	PLL CK	O	PLL & shift register clock	-
13	PLL DT	O	PLL data	-
14	SFT DT	O	Shift register data	-
15	PLL UL	I	PLL unlock signal	-
16	SI	I	Panel microcomputer communications SI	-
17	SO	O	Panel microcomputer communications SO	-
18	RST	I	Reset switch input	H:pressed,L:No operation
19	MUTE0	O	SP/MIC AF MUTE SW	H:MUTE ON
20	MUTE1	O	Internal/external AF mute switch	H:MUTE ON
21		O	Open (connect Vdd)	-
22	AGC	O	AGC	H:AGC ON
23	FAN	O	FAN	H:FAN ON
24	PLL SW	O	PLL SW	H: One moment when PPT On
25	V SHIFT	O	VHF VCO SHIFT SW	-
26	PSW	O	Power Switch	H:PSW ON,L:PSW OFF
27				-
28	AM SW	O	AM SW	H:AM,L:FM
29~30		I	Open (connect Vdd)	-
31	DM CK	O	DTMF decoder clock	-
32	DM DT	O	DTMF decoder data	-
33	VSS	-	Microcomputer ground potential	-
34	DM STD	I	DTMF decoder detect terminal	-
35	5CSW	O	5C switch control	H:5C OFF,L:5C ON
36~39	SIM0~3	I	Destination Bit 0~3	-
40	EEP SO	I	EEPROM SO	-
41	EEP CS	O	EEPROM chip select	H,L select
42	EEP CK	O	EEPROM clock	-
43	EEP SI	O	EEPROM SI	-
44	PWM	O	APC control, BPF control (PWM)	-
45	P CHCK	I	Packet connection check	-
46	BEEP	O	Beep output	-
47	ASW 1200	O	Packet signal input select 1200bps	H:1200bps side input
48	ASW DM	O	DTMF monitor ON/OFF	H:MONI ON
49	ASW 9600	O	Packet signal input select 9600bps	H:9600bps side input
50	1750HZ	O	1750Hz	-
51	ASW SQ	O	PR1 squelch control analog switch	L:PR1 MUTE
52	MIC BUSY	O	Speaker mic Busy LED	H:BUSY LED ON
53	V NAR	O	Audio synthesis IC serial input enable	L:Enable
54	V RST	O	Audio synthesis IC reset	-
55	V CS	O	Audio synthesis chip select	-
56	V DT	O	CTCSS data/audio synthesis IC data	-
57	V/CT CK	O	CTCSS clock/audio synthesis IC clock, connection check	-
58	CT DE	O	CTCSS detected	L:Detected
59	CT EN	O	CTCSS enable	-
60	RESET	I	External reset terminal	-
61	SIM CH	I	CH display jumper	L:jumper present
62	B CHK	I	Power supply check	H:Voltage drop
63	INT2	I	Panel microcomputer communications request direct (connected to Pin 10)	L:Communications request
64	INT3	I	(Connected to Pin 2)	-
65	VR CK	O	Electronic VR clock	-
66	VR EN	O	Electronic VR enable	-
67	VR DT	O	Electronic VR data	-
68	VDD	-	Positive power supply terminal	-
69	X2	-	System clock (4.194304MHz)	-
70	X1	I	System clock (4.194304MHz)	-
71	VPP	-	Connected to VSS	-
72		-	Open	-
73		-	Open (Connected to VSS)	-
74	AVDD	-	A/D conversion circuit power supply terminal (connected to VDD)	-
75	AVREF0	-	A/D conversion circuit reference voltage terminal (connected to VDD)	-
76	SQ IN	I	Squelch input	-
77	SM IN	I	S meter input	-
78~80		I	Open (Connected to Vdd)	-

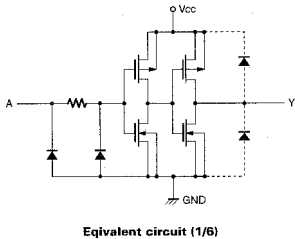
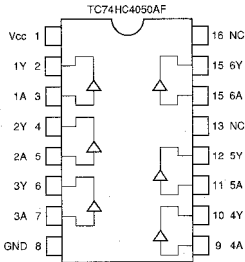
TM-G707A/E

SEMICONDUCTOR DATA

BU4066BCF CONTORL UNIT:IC507



TC74HC4050AF CONTORL UNIT:IC510



DESCRIPTION OF COMPONENTS

TX-RX UNIT (X57-557X-XX)

Ref.No.	Application/Function	Operation/Condition/Compatibility
Q1	Fan switch	
Q2	Buffer amp	12.8MHz
Q3	F in amp	UHF
Q4	F in amp	VHF
Q5, Q6	Charge pump	VHF/UHF common
Q11	VCO power select switch	VHF or UHF On
Q12	VCO 8CL ripple filter	VHF-UHF common
Q13	Common amp	VHF
Q14	Common amp	UHF
Q15	Transmission driver	UHF transmission on
Q16	Transmission driver	VHF transmission on
Q17	Transmission driver	UHF transmission on
Q18	Transmission driver	VHF transmission on
Q19	Transmission driver	UHF transmission on
Q20, Q21	APC control	VHF/UHF common transmission on
Q22	Protection switch	APC temperature protection
Q23, Q24	AVR	For PB
Q25	Protection switch	Excess voltage protection
Q26	Power switch	For 8R
Q27	Power switch	For 8TU
Q28	Power switch	For 8TV
Q29	Power switch	For 8CU
Q30	Power switch	For 8CV
Q31	Power select switch	43R/36R selection
Q32	Power select switch	14R/36R selection
Q33	RF amp	When VHF reception on
Q34	RF amp	
Q35	Doubler	
Q36	RF amp	When UHF reception on
Q37	First mixer	
Q38	First mixer switch	
Q39	RF amp	
Q40	RF amp	When UHF reception on
Q42	Switch for band switch	When UHF reception on
Q43	First mixer switch	When VHF reception on
Q44	First mixer switch	When UHF reception on
Q45	First mixer	When VHF reception on
Q46	First mixer	When UHF reception on
Q47	AGC amp	
Q48	First IF amp	VHF/UHF common transmission on
Q49	Tripler	Second local
Q50	Select switch	
Q51, Q53	Power switch	Power Switch
Q52	Noise amp	Squelch
Q54	AGC amp	
Q55	Mute switch	When speaker mic used
Q56	Mute switch	When internal speaker used
Q60	Mute switch	When internal speaker used
Q61, Q62	Mute switch	When internal speaker used
Q501	Backup switch	Backup on off
Q502	Power switch	For SW5C
Q503	Reset switch	Reset when on
Q504	BUSY LED switch	When speaker mic used
Q505	Buffer amp	9600bps RD
Q506	Buffer amp	1200bps RD

Ref.No.	Application/Function	Operation/Condition/Compatibility
IC1	PLL IC	PLL
IC2	Select switch	Loop filter switching
IC3	Speed up	Loop filter
IC4	VCO	VHF
IC5	VCO	UHF
IC6	Comparator	APC
IC7	Shift register	
IC8	FM wave detection	
IC9	Select switch	
IC10	5V regulator	5C
IC1	Microcomputer	LCD display assy
IC1	Audio amp	(Main)
IC2	8V AVR	8C (Main)
IC3	Power module	VHF (Main)
IC4	Power module	UHF (Main)
IC501	6V regulator	
IC502	5V regulator	5C
IC503	Reset detect	
IC504	Electronic control	
IC505	DTMF decoder	
IC506	Base band IC	
IC507	Analog switch	
IC508	Microcomputer	
IC509	Comparator	For speaker mic power switch
IC510	Buffer amp	PHI/TXD/RXD/PSI/PSO
IC511	EEPROM	
D1, D2	Select switch	F in switch
D3	Lock detect	Lock detect
D4	Reduce voltage	Charge pump
D6	Quick charge	VCO ripple filter
D6-D9	Select switch	Hetero switch
D10-D12	Voltage stabilizer	Q16, Q18, Q19 base bias
D13, D43	Excess power prevention	Q33 protection
D14, D18	Antenna switch	UHF
D15-D17, D42	Antenna switch	VHF
D19, D21	Power detection	UHF
D20, D23	Power detection	VHF
D22	OR circuit	8TV/8TU
D24	Voltage stabilization	Q23 base bias
D25	Excess voltage prevention	For PB
D26	Excess power prevention	Q36 protection
D27	Band switch	
D28, D29, D31	Band bus tuning	VHF front end
D30	Band switch	
D33	OR circuit	43R/36R
D34, D35	Back current prevention	VCO power switch
D37, D38	Select switch	Hetero switch
D39	Rectifier	Noise amp output
D40, D41	Diverse connection prevention	
D501, D503	Back current prevention	IC501
D502	Voltage stabilization	Q501
D504	Reduce voltage	RST port
D505, D506	Back current prevention	Data terminal
D507	Back current prevention	MIC terminal
D508, D509	Limitter	PKD

TERMINAL FUNCTION

TX-RX UNIT (X57-557X-XX:A/3)

CN No.	Pin No.	Name	Function
CN1	1	FAN	SB output for fan
	2	E	GND
CN3	1	AF	Audio signal output for speaker mic
	2	AF	Audio signal output for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF-BPF control
	6	UL	Unlock detect output
	7		Not used
	8	DTP	PLL data input
	9	CK	PLL shift register clock input
	10	EP	PLL enable input
	11	E	GND
	12		Not used
	13	MOV	VHF modulation input
	14	MOU	UHF modulation input
	15	E	GND
	16	A00	Audio signal input for speaker mic
	17	A01	Audio signal input for internal/external speakers
	18	E	GND
CN4	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
	1	PB	Panel power supply output
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control input
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal input for speaker mic
	8	RD	Demodulation audio output
	9	E	GND
	10	MUTE1	Mute control signal input for internal/external speakers
	11	SQ	Squelch voltage output
	12	SM	S meter voltage output
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data input
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
CN5	19	AM SW	AM select switch
	20	E	GND
	1		Internal speaker output
	2		GND

LCD ASSY (B38-0797-35)

CN No.	Pin No.	Name	Function
CN1	1	E	GND
	2	SW	Band select switch signal input
	3	SQ	Squelch volume voltage input
	4	VOL	AF volume voltage input
	5	VDD	Reference voltage output (5V)

CONTROL UNIT (X57-557X-XX:B/3)

CN No.	Pin No.	Name	Function
CN501	1	PSI	Serial data input
	2	PSO	Serial data output
	3	PE	Panel ground
	4	PB	Panel power supply output
CN502	1	PB	Panel power supply input
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control output
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal output for speaker mic
	8	RD	Demodulation audio input
	9	E	GND
	10	MUTE1	Mute control signal output for internal/external speakers
	11	SQ	Squelch voltage input
	12	SM	S meter voltage input
CN503	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data output
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
	1	AF	Audio signal input for speaker mic
	2	AF	Audio signal input for speaker mic
	3	E	GND
	4	E	GND
CN504	5	PWM	APC and VHF BPF control
	6	UL	Unlock detect input
	7		Not used
	8	DTP	PLL data input
	9	CK	PLL shift register clock output
	10	EP	PLL enable output
	11	E	GND
	12		Not used
	13	MOV	VHF modulation output
	14	MOU	UHF modulation output
	15	E	GND
	16	A00	Audio signal output for speaker mic
CN505	17	A01	Audio signal output for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
	1	VCK	VS-3 clock output
	2	VDI	VS-3 data output
	3	VCS	VS-3 chip select
	4	RST	VS-3 reset output
	5	NAR	VS-3 input enable output
	6	E	GND
	7	5C	Common 5V
	8	V0	Audio input
CN701	1	E	GND
	2	SW	Band select switch signal output
	3	SQ	Squelch volume voltage output
	4	VOL	AF volume voltage output
	5	VDD	Reference voltage input (5V)

PARTS LIST

CAPACITORS

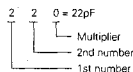
CC	45	TH	1H	220	J
1	2	3	4	5	6

- 1 = Type ... ceramic, electrolytic, etc.
 2 = Shape ... round, square, ect.
 3 = Temp. coefficient
 4 = Voltage rating
 5 = Value
 6 = Tolerance



Capacitor value

- 010 = 1pF
 100 = 10pF
 101 = 100pF
 102 = 1000pF = 0.001μF
 103 = 0.01μF



Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	-80	-150	-220	-330	-470	-750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example: CC45TH = -470 ± 60ppm/°C

Tolerance (More than 10pF)

Code	C	D	G	J	k	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40 -20	+80 -20	+100 -0	More than 10μF -10 ~ +50 Less than 4.7μF -10 ~ +75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

Voltage rating

2nd word	A	B	C	D	E	F	G	H	J	K	V
1st word	0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	-
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	-

Chip capacitors

- (EX) C C 7 3 F S L 1 H 0 0 0 J
 1 2 3 4 5 6 7
 (Chip) (CH, RH, U, J, SL)
 Refer to the table above
 1 = Type
 2 = Shape
 3 = Dimension
 4 = Temp. coefficient
 5 = Voltage rating
 6 = Value
 7 = Tolerance
- (EX) C K 7 3 F F 1 H 0 0 0 Z
 1 2 3 4 5 6 7
 (Chip) (B, F)

Dimension (Chip capacitors)

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0

RESISTORS

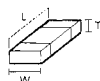
Chip resistor (Carbon)

- (EX) R K 7 3 E B 2 B 0 0 0 J
 1 2 3 4 5 6 7
 (Chip) (B, F)

Carbon resistor (Normal type)

- (EX) R D 1 4 B B 2 C 0 0 0 J
 1 2 3 4 5 6 7
 1 = Type
 2 = Shape
 3 = Dimension
 4 = Temp. coefficient
 5 = Rating wattage
 6 = Value
 7 = Tolerance

Dimension



Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6 ± 0.2	0.8 ± 0.2	0.5 ± 0.1

Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/8W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

TM-G707A/E

PARTS LIST

* New Parts. Δ Indicates safety critical components.

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

L. Scandinavia

Y. PX (Far East, Hawaii)

Y. AP/ES (Europe)

K. USA

T. England

X. Australia

P. Canada

E. Europe

M. Other Areas

TM-G707A/E

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
TM-G707A/E											
1	3B		A01-2121-13	CABINET (LOWER)		40	2B	*	G11-2533-04	SHEET	
2	1B		A01-2122-13	CABINET (UPPER)		41	3A		G13-1573-24	CUSHION (PANEL)	
3	3A	*	A22-0600-01	SUB PANEL		42	2B		G13-1602-04	CUSHION	
4	3A	*	A62-0571-13	PANEL ASSY		43	3A		G13-1625-04	CUSHION (PANEL)	
5	3B	*	A62-0028-01	REAR PANEL		44	3A	*	G13-1642-14	CUSHION (PANEL BAND KEY)	
6	1B	*	B09-0385-05	CAP (PHONE)		45	-		H10-0505-01	FOAM PACKING MOLD	
7	3A	*	B10-2518-02	FRONT GLASS		46	-		H11-0987-04	POLYSTYRENE FOAMED BOARD	
8	3A	*	B11-1193-08	REFLECTOR (LCD ASSY)		47	-		H25-0103-04	PROTECTION BAG (125/25/0.07)	
LED1-15	-		B30-2167-08	LED (LCD ASSY)		48	-		H25-0337-04	PROTECTION BAG (180/30/0.03)	
8	3A	*	B38-0787-35	LCD ASSY		49	-		H25-0723-04	PROTECTION BAG (230/40/0.07)	
-	-	*	B38-0789-08	LCD (LCD ASSY)		50	-	*	H52-1078-02	ITEM CARTON CASE	K
9	1B	*	B42-2455-04	STICKER (M4&MMA)		50	-	*	H52-1079-02	ITEM CARTON CASE	M2,M4
10	-	*	B46-0337-03	WARRANTY CARD	ACSY E.E3	50	-	*	H52-1080-02	ITEM CARTON CASE	E.E3
10	-	*	B46-0488-10	WARRANTY CARD	ACSY K	51	-		J19-1526-04	HOLDER	ACSY K
11	-	*	B62-0864-00	INSTRUCTION MANUAL (ENGLISH)	ACSY K,M2,E	52	-		J29-0632-13	BRACKET (MOBILE)	ACSY
12	-	*	B62-0865-00	INSTRUCTION MANUAL (ITALY)	ACSY E	53	3A		J36-1237-14	SPACER	
13	-	*	B62-0866-00	INSTRUCTION MANUAL (GERMANY)	ACSY E.E3	54	3A		K27-3164-13	BUTTON KNOB (KEYS-HOIM)	
14	-	*	B62-0867-00	INSTRUCTION MANUAL (SPANISH)	ACSY K.E3	55	3A		K27-3165-03	BUTTON KNOB (POWER/CALL)	
15	-	*	B62-0868-00	INSTRUCTION MANUAL (FRENCH)	ACSY E3	56	3A		K27-3166-23	BUTTON KNOB (VFO)	
16	-	*	B62-0869-00	INSTRUCTION MANUAL (CHINESE)	ACSY M4	57	3A		K27-3167-33	BUTTON KNOB (MR)	
17	-	*	B62-0870-00	INSTRUCTION MANUAL (DUTCH)	ACSY E3	58	3A		K27-3168-23	BUTTON KNOB (PM)	
18	3B	*	B72-1425-04	MODEL NAME PLATE (FR TA)	E3	59	3A		K27-3169-33	BUTTON KNOB (MENU)	
19	3B	*	B72-1340-04	MODEL NAME PLATE	K	60	3B		K27-3170-13	LEVER KNOB (RELEASE)	
19	3B	*	B72-1341-04	MODEL NAME PLATE	M2,M4	61	3A	*	K27-3174-13	BUTTON KNOB (BAND)	
19	3B	*	B72-1342-04	MODEL NAME PLATE	E.E3	62	3A	*	K27-3175-03	BUTTON KNOB (M4)	
20	1B		E04-0167-05	RF COAXIAL RECEPTACLE (M)	K,M2,M4	63	3A	*	K29-5221-03	KNOB (ENCODER)	
20	1B		E04-0170-05	RF COAXIAL RECEPTACLE (M)	E.E3	64	3A	*	K29-5222-03	KNOB (VOL)	
21	-		E30-2111-15	DC CORD ASSY (MOBILE)	ACSY	65	3A	*	K29-5223-03	KNOB (ISOL)	
22	1B		E30-2157-15	DC CORD		A	3A		N14-0959-04	CIRCULAR NUT (VOL)	
-	-		E30-3006-09	MIC CUAL CABLE (TO SERVICE)	E.E3	B	1B,3B		N33-2806-45	OVAL HEAD MACHINE SCREW (CAR)	
-	-		E36-3006-39	MIC CUAL CABLE (TO SERVICE)	M2,M4,E	C	2B,3B		N67-3008-46	PAN HEAD SEMS SCREW W/ (MODULE)	
23	1B		E39-3240-08	MIC CUAL CABLE (TO SERVICE)	K	D	3B		N80-7010-45	PAN HEAD TAPITE SCREW (PANEL)	
24a	2A		E31-3107-15	LEAD WIRE WITH CONNECTOR (SP)	E	E	1B		N80-7810-45	PAN HEAD TAPITE SCREW (FAN)	
24b	2A		E37-0632-06	FLAT CABLE (20P)		F	2A		N83-2005-46	PAN HEAD TAPITE SCREW	
24c	2A		E37-0724-05	FLAT CABLE (20P)	E.E3	G	1B,2B		N83-2808-46	PAN HEAD TAPITE SCREW	
CH1	-		E40-5953-05	PIN ASSY (LCD ASSY)		H	2B		N87-2806-46	BRAZER HEAD TAPITE SCREW	
CH2	-		E40-5409-05	PIN ASSY (LCD ASSY)	ACSY	96	-		N89-0331-05	SCREW SET (MOBILE)	E.E3
25	2A		F07-1428-23	COVER (DIN 8P)		96	-		N89-0331-05	SCREW SET (MOBILE)	ACSY M2,M4
26	1B		F07-1429-03	COVER (FAN)		97	-		N89-0382-05	SCREW SET	ACSY K
27	2B		F19-2233-04	SHIELDING COVER (VCO)		3W1-3	-		S70-8498-05	TACT SWITCH (LCD ASSY)	
28	-		F51-0017-05	FUSE (30) 15A	ACSY	3W4	3A		W62-1321-05	ENCODER (LCD ASSY)	
28	1B		F51-0017-05	FUSE (30) 15A		3W5-8	-		S70-8499-05	TACT SWITCH (LCD ASSY)	
29	-		F51-0018-05	FUSE (30) 20A	ACSY	3P	1B		T07-0301-05	SPEAKER	
30	2A		G02-0794-04	FLAT SPRING (CONT UNIT)		3B	1B		T42-0311-15	FAN MOTOR	
31	1B		G02-0803-03	FLAT SPRING (AF AMP/AVR)		MIC	-		T91-0386-05	MICROPHONE	ACSY E.E3
32	-		G02-0809-04	FLAT SPRING (TX-RX UNIT)		MIC	-		T91-0386-05	MICROPHONE	ACSY M2,M4
33	2B		G09-0434-14	SPRING		-	-		T91-0570-08	MIC ELEMENT (TO SERVICE)	K
34	2A,3A		G10-0792-14	FIBROUS SHEET		MIC	-	*	T91-0586-05	MICROPHONE	ACSY K
35	2A		G10-0793-14	FIBROUS SHEET		IC1	-		L4446	IC (AF POWER AMP)	
36	3B		G10-0794-14	FIBROUS SHEET		IC2	-		1A7808S	IC (REGULATOR)	
37	1B		G11-0778-04	RUBBER CUSHION (SP)		IC3	2B	*	M67746	IC (POWER MODULE VHF)	
38	2A		G11-0779-04	SHEET		IC4	2B	*	M57788MR 24	IC (POWER MODULE 430 450MH/35W)	
39	3B		G11-0794-14	SHEET		IC1	-	*	78P084GJLTD	IC (CPU LCD ASSY)	

PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
TX-RX UNIT (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3											
C1,2			CK73GB1H102K	CHP.C	1000PF K	C77			CK73GB1H471K	CHP.C	470PF K
C3			C92-0538-05	CHP-ELE	100UF 16WV	C78			CK73GB1H102K	CHP.C	1000PF K
C4			CK73GB1H103K	CHP.C	0.010UF K	C79			CK73GB1H471K	CHP.C	470PF K
C5			CK73GB1E223K	CHP.C	0.022UF K	C80			CK73GB1A105K	CHP.C	1.0UF K
C6			CK73GB1H102K	CHP.C	1000PF K	C81			CK73GB1H455C	CHP.C	5.0PF C
C7			CK73GB1H1010B	CHP.C	1.0PF B	C82			CK73GB1H430J	CHP.C	33PF J
C8,9			CK73GB1H1040C	CHP.C	4.0PF C	C83			C90-0523-05	CHP-ELE	10UF 16WV
C10			CK73GB1H102K	CHP.C	1000PF K	C84			CK73GB1H102K	CHP.C	1000PF K
C11			CK73GB1H103K	CHP.C	0.010UF K	C85			CK73GB1H101J	CHP.C	100PF J
C12			CK73GB1H102K	CHP.C	1000PF K	C87			CK73GB1H102K	CHP.C	1000PF K
C13			CK73GB1H103K	CHP.C	0.010UF K	C88			CK73GB1H101J	CHP.C	100PF J
C14,15			CK73GB1H1020C	CHP.C	3.0PF C	C89			CK73GB1H102K	CHP.C	1000PF K
C17			CK73GB1H471K	CHP.C	470PF K	C90,91			CK73GB1H103K	CHP.C	0.010UF K
C18			CK73GB1H455C	CHP.C	3.0PF C	C92,93			CK73GB1H102Y	CHP.C	1000PF K
C19			CK73GB1H1060D	CHP.C	6.0PF D	C94			C90-0525-05	CHP-ELE	10UF 16WV
C20			CK73GB1H1010D	CHP.C	10PF D	C95,96			CK73GB1H102K	CHP.C	1000PF K
C21			CK73GB1H471K	CHP.C	470PF K	C97			C90-0522-05	CHP.C	100PF J
C23,24			CK73GB1C164K	CHP.C	0.16UF K	C98			C90-0555-05	CHP.C	5.0PF C
C25			CK73GB1H471K	CHP.C	470PF K	C99			CK73GB1H103K	CHP.C	0.010UF K
C27			CK73GB1H101J	CHP.C	100PF J	C101			CK73GB1H102K	CHP.C	1000PF K
C29			CK73GB1H102K	CHP.C	1000PF K	C102			C90-0550-05	CHP.C	10PF D
C30			CK73GB1C473K	CHP.C	0.047UF K	C103			CK73GB1H455B	CHP.C	6.5PF B
C33,34			C92-0002-05	CHP-TAN	0.22UF 35WV	C104			CK73GB1H101J	CHP.C	100PF J
C35,36			C92-0035-05	CHP-TAN	10UF 10WV	C105			C92-0610-05	CHP-ELE	47UF 16WV
C37,38			C92-0511-05	CHP-TAN	0.15UF 35WV	C106			C90-0554-05	CHP.C	4.0PF C
C39			C92-0506-05	CHP-TAN	4.7UF 10WV	C107			CK73GB1C164K	CHP.C	0.16UF K
C40			CK73GB1H101J	CHP.C	100PF J	C108			CK73GB1H430J	CHP.C	30PF J
C41			CK73GB1H103K	CHP.C	0.010UF K	C109,110			CK73GB1H102K	CHP.C	1000PF K
C42			C92-0006-05	CHP-TAN	4.7UF 10WV	C111			C90-0572-05	CHP.C	100PF J
C43			CK73GB1H101J	CHP.C	100PF J	C112			C90-0554-05	CHP.C	22PF J
C44			CK73GB1H102K	CHP.C	0.010UF K	C113			C90-0558-05	CHP.C	9.0PF D
C45			C90-0533-05	CHP-ELE	23UF 10WV	C114,115			CK73GB1H102K	CHP.C	1000PF K
C46			CK73GB1H102K	CHP.C	1000PF K	C116			CK73GB1H405B	CHP.C	0.5PF B
C47			CK73GB1H103C	CHP.C	3.0PF C	C117			CK73GB1H402B	CHP.C	2.0PF B
C48,50			CK73GB1H1040C	CHP.C	4.0PF C	C118			CK73GB1H405B	CHP.C	0.5PF B
C51			CK73GB1H1150J	CHP.C	15PF J	C119			CK73GB1H4010B	CHP.C	1.0PF B
C52,53			CK73GB1H102K	CHP.C	1000PF K	C120			CK73GB1H405B	CHP.C	0.5PF B
C54			CK73GB1H455C	CHP.C	5.0PF C	C121			CK73GB1H402B	CHP.C	2.0PF B
C55			CK73GB1H1060D	CHP.C	6.0PF D	C122			CK73GB1H103K	CHP.C	0.010UF K
C56			CK73GB1H1010B	CHP.C	1.0PF B	C124			C90-0166-05	CHP.C	33PF J
C57			CK73GB1H471K	CHP.C	470PF K	C125			C90-0657-05	CHP.C	7.0PF D
C58			CK73GB1H102K	CHP.C	1000PF K	C126			CK73GB1H102K	CHP.C	1000PF K
C59			CK73GB1A105K	CHP.C	1.0UF K	C127			CK73GB1C164K	CHP.C	0.16UF K
C60			CK73GB1H101J	CHP.C	100PF J	C128			C90-0557-05	CHP.C	30PF J
C61-63			CK73GB1H102K	CHP.C	1000PF K	C129			CK73GB1H405B	CHP.C	0.5PF B
C64			CK73GB1H471K	CHP.C	470PF K	C130			CK73GB1H405B	CHP.C	0.5PF B
C65			CK73GB1H102J	CHP.C	12PF J	C131			CK73GB1C164K	CHP.C	0.16UF K
C66			CK73GB1H102K	CHP.C	1000PF K	C132			CK73GB1H405B	CHP.C	0.5PF B
C67			CK73GB1H471K	CHP.C	470PF K	C133			CK73GB1H1010B	CHP.C	1.0PF B
C68			CK73GB1H102K	CHP.C	1000PF K	C134			CK73GB1C164K	CHP.C	0.16UF K
C69			CK73GB1H471K	CHP.C	470PF K	C135			C90-0558-05	CHP.C	9.0PF D
C70			CK73GB1H430J	CHP.C	30PF J	C136			C90-0557-05	CHP.C	7.0PF D
C71			CK73GB1H102K	CHP.C	1000PF K	C137			CK73GB1H102K	CHP.C	1000PF K
C72			CK73GB1H471K	CHP.C	470PF K	C138			C90-0554-05	CHP.C	22PF J
C73			CK73GB1C164K	CHP.C	0.16UF K	C139,140			C90-0555-05	CHP.C	5.0PF C
C74			CK73GB1H1060D	CHP.C	6.0PF D	C141			C90-0554-05	CHP-ELE	100UF 16WV
C75			CK73GB1H471K	CHP.C	470PF K	C142			CK73GB1H103K	CHP.C	0.010UF K
C76			CK73GB1H102K	CHP.C	1000PF K	C143			CK73GB1A105K	CHP.C	1.0UF K
						C144,145			CK73GB1H103K	CHP.C	0.010UF K
						C147,148			C92-0610-05	CHP-ELE	47UF 16WV

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C149			0273GCH1H030C	CHIP C 3.9PF C		C221			0K73GB1H102K	CHIP C 1000PF K	
C150			0273GCH1H070J	CHIP C 100PF J		C222			0273GCH1H080D	CHIP C 8.0PF D	
C151			0273GCH1H240J	CHIP C 24PF J		C223			0K73GB1H102K	CHIP C 1000PF K	
C152			0K73GB1H102K	CHIP C 1000PF K		C224			0K73GB1E223K	CHIP C 0.022UF K	E.E3
C153			0K73GB1H471K	CHIP C 470PF K		C224			0K73GB1E223K	CHIP C 0.022UF K	M2.M4
C154			0273GCH1H101J	CHIP C 100PF J		C225			0K73GB1H562K	CHIP C 5600PF K	
C155			0K73GB1H471K	CHIP C 470PF K		C225			0K73GB1H562K	CHIP C 5600PF K	
C156			0273GCH1H020C	CHIP C 3.0PF C		C226			0K73GB1H103K	CHIP C 0.010UF K	E.E3
C157			0K73GB1H102K	CHIP C 1000PF K		C227			C92-0558-05	CHIP-ELE 190UF 16WV	M2.M4
C158			0273GCH1H020B	CHIP C 2.0PF B		C228			C64EW1H470M	ELECTRO 47UF 50WV	
C159			0K73GB1H471K	CHIP C 470PF K		C229			0K73GB1H102K	CHIP C 1000PF K	
C160			0K73GB1H102K	CHIP C 1000PF K		C230			C92-0610-05	CHIP-ELE 47UF 16WV	E.E3
C161			0K73GB1H471K	CHIP C 470PF K		C230			C92-0610-05	CHIP-ELE 47UF 16WV	M2.M4
C162			0273GCH1H195B	CHIP C 1.5PF B		C231			C64EW1C471M	ELECTRO 470UF 16WV	E.E3
C163-165			0273GCH1H101J	CHIP C 100PF J		C231			C64EW1C471M	ELECTRO 470UF 16WV	M2.M4
C166,167			0K73GB1H102K	CHIP C 1000PF K		C232			0K73GB1C104K	CHIP C 0.10UF K	E.E3
C168			0273GCH1H020C	CHIP C 3.0PF C		C232			0K73GB1C104K	CHIP C 0.10UF K	M2.M4
C169			0K73GB1H103K	CHIP C 0.010UF K		C233			0273GCH1H101J	CHIP C 100PF J	
C170			0K73GB1H471K	CHIP C 470PF K		C234			0K73GB1H103K	CHIP C 1000PF K	
C171			0273GCH1H020B	CHIP C 2.0PF B		C235			0K73GB1H103K	CHIP C 0.010UF K	
C172			0K73GB1H102K	CHIP C 1000PF K		C236			C92-0610-05	CHIP-ELE 47UF 16WV	
C173			0273GCH1H020B	CHIP C 2.0PF B		C237			C64EW1H470M	ELECTRO 47UF 50WV	
C174			0K73GB1H102K	CHIP C 1000PF K		C238			0K73GB1H103K	CHIP C 0.010UF K	
C175			0273GCH1H210J	CHIP C 27PF J		C239			0K73GB1H562K	CHIP C 5600PF K	
C176			0273GCH1H020B	CHIP C 2.0PF B		C240			0K73GB1C104K	CHIP C 0.10UF K	
C177			0K73GB1H102K	CHIP C 1000PF K		C241			0273GCH1H30J	CHIP C 39PF J	
C178			0273GCH1H210J	CHIP C 27PF J		C242			0273GCH1H20J	CHIP C 82PF J	
C179			0273GCH1H101J	CHIP C 100PF J		C243			C92-0610-05	CHIP-ELE 47UF 16WV	
C180			0273GCH1H020B	CHIP C 2.0PF B		C244			0K73GB1C104K	CHIP C 0.10UF K	
C181			0K73GB1H102K	CHIP C 1000PF K		C245			0273GCH1H80J	CHIP C 68PF J	
C183			0273GCH1H055B	CHIP C 0.5PF B		C246			0273GCH1H101J	CHIP C 100PF J	
C184			0K73GB1H102K	CHIP C 1000PF K		C247			0273GCH1H20J	CHIP C 82PF J	
C185			0K73GB1H471K	CHIP C 470PF K		C248			0K73GB1H103K	CHIP C 0.010UF K	
C186			0273GCH1H210J	CHIP C 27PF J		C249			0273GCH1H180J	CHIP C 18PF J	
C187			0K73GB1H102K	CHIP C 1000PF K		C250			0K73GB1H102K	CHIP C 1000PF K	
C188			0273GCH1H040C	CHIP C 4.0PF C		C251			0K73GB1H103K	CHIP C 0.010UF K	
C191			0K73GB1H471K	CHIP C 470PF K		C252-254			0K73GB1C104K	CHIP C 0.10UF K	
C193			0K73GB1H471K	CHIP C 470PF K		C255			C92-0004-05	CHIP-TAN 1.0UF 16WV	
C196			0K73GB1H471K	CHIP C 470PF K		C256			0K73GB1C333K	CHIP C 0.033UF K	
C197			0273GCH1H195B	CHIP C 1.5PF B		C257,258			0273GCH1H101J	CHIP C 100PF J	
C198			0K73GB1H471K	CHIP C 470PF K		C259			0K73GB1C473K	CHIP C 0.047UF K	
C200			0K73GB1H471K	CHIP C 470PF K		C260			0K73GB1H103K	CHIP C 0.010UF K	
C202			0273GCH1H102K	CHIP C 1000PF K		C262			0K73GB1H103K	CHIP C 0.010UF K	
C203			0K73GB1H471K	CHIP C 470PF K		C263			C92-8558-05	CHIP-ELE 190UF 16WV	
C205			0K73GB1H103K	CHIP C 0.010UF K		C264			0273GCH1H101J	CHIP C 100PF J	
C207			0K73GB1H471K	CHIP C 470PF K		C266			0K73GB1H103K	CHIP C 0.010UF K	
C208			0273GCH1H090D	CHIP C 6.0PF D		C267			0273GCH1H20J	CHIP C 27PF J	
C209			0K73GB1H102K	CHIP C 1000PF K		C268,269			0K73GB1H103K	CHIP C 0.010UF K	
C210			0273GCH1H020B	CHIP C 2.0PF B		C270			0K73GB1H212K	CHIP C 2700PF K	
C211			0K73GB1E223K	CHIP C 0.022UF K	E.E3	C271			0K73GB1H103K	CHIP C 0.010UF K	
C211			0K73GB1E223K	CHIP C 0.022UF K	M2.M4	C272			0K73GB1C104K	CHIP C 0.10UF K	
C212			0273GCH1H090D	CHIP C 1.0PF B		C273			C92-0001-05	CHIP-C 0.1UF 35WV	
C213			0K73GB1H103K	CHIP C 0.010UF K		C274			0K73GB1H102K	CHIP C 1000PF K	
C214			0273GCH1H040C	CHIP C 4.0PF C		C275			C90-4059-05	ELEC-CAP 1000UF 16WV	
C215			0273GCH1H80J	CHIP C 82PF J		C276			C92-4004-05	CHIP-TAN 1.0UF 16WV	
C216			0K73GB1H102K	CHIP C 1000PF K		C277			C90-4053-05	ELEC-CAP 1000UF 16WV	
C217			0K73GB1H471K	CHIP C 470PF K		C278			C92-0610-05	CHIP-ELE 47UF 16WV	
C218			0K73GB1H103K	CHIP C 0.010UF K		C279			C64EW1C471M	ELECTRO 470UF 16WV	
C219			0K73GB1H102K	CHIP C 1000PF K		C280			0K73GB1C104K	CHIP C 0.10UF K	
C220			0K73GB1H103K	CHIP C 0.010UF K		C281			0K73GB1E223K	CHIP C 0.022UF K	

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C282			CK73GB1H103K	CHIP C	0.010UF K	C586			CK73GB1C104K	CHIP C	0.10UF K
C283-287			CK73GB1H102K	CHIP C	100PF K	C582			CK73GB1H103K	CHIP C	0.010UF K
C288			CK73GB1H223K	CHIP C	0.022UF K	TC1			C05-0384-05	CERAMIC TRIMMER CAP(10P)	
C290			CK73GB1A105K	CHIP C	1.0UF K	CN1			E40-3237-05	PIN ASSY(2P)	
C291			CK73GB1H162K	CHIP C	100PF K	CN2			E23-0485-05	TERMINAL	
C291			CK73GB1H102K	CHIP C	100PF K	CA8.4			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C292			CK73GB1C104K	CHIP C	0.10UF K	CN5			E40-3237-05	PIN ASSY(2P)	
C585,506			CK73GB1H102K	CHIP C	100PF K	CN501			E40-5852-45	PIN ASSY(4P)	
C587			CK73GB1H103K	CHIP C	0.010UF K	CN502,503			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C588			CK73GB1H101J	CHIP C	100PF J	CN564			E40-5616-05	FLAT CABLE CONNECTOR(8P)	
C589			CK73GB1H471K	CHIP C	470PF K	CA761			E40-5392-05	PIN ASSY(5P)	
C510			CK73GB1H103K	CHIP C	0.010UF K	J1			E11-0448-05	3.5D PHONE JACK(2P)	
C511			CE040VWJ03M1	ELECTRO	330UF 6.3WV	J501			E56-0404-05	RF COAXIAL RECEPTACLE(ROUND)	
C512			CK73GB1H101J	CHIP C	100PF J	JW2			E08-0677-05	MODULAR JACK	
C513			C82-0545-05	CHIP-TAN	86UF 6.3WV	W501,502			E37-0459-05	PROCESSED LEAD WIRE	K
C514			CK73GB1C104K	CHIP C	0.10UF K	F1			F53-0128-05	FUSE (0.5A 50V)	
C515			C82-0606-05	CHIP-TAN	4.7UF 10WV	F2,3			F53-0108-05	FUSE (1.8A 50V)	
C516			C82-0658-05	CHIP-ELE	100UF 16WV	F4			F53-0114-05	FUSE (0.7A 50V)	
C517			CK73GB1H103K	CHIP C	0.01UF K	F501			F53-0108-05	FUSE (1.8A 50V)	
C518			CK73GB1A105K	CHIP C	1.0UF K	Q1			E79-1115-05	TUNING COIL(450KHZ)	
C519			CK73GB1H471K	CHIP C	470PF K	Q1			L72-9031-05	CERAMIC FILTER	
C521			CK73GB1C104K	CHIP C	0.010UF K	L1			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C522,523			CK73GB1H103K	CHIP C	0.010UF K	L2			L40-3971-36	SMALL FIXED INDUCTOR(39NH)	
C524,525			CK73GB1C104K	CHIP C	0.10UF K	L3			L40-2281-37	SMALL FIXED INDUCTOR(220NH)	
C526			CK73GB1H223K	CHIP C	22PF J	L4			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
C528			CK73GB1H102K	CHIP C	100PF K	L5			L40-1581-37	SMALL FIXED INDUCTOR(150NH)	
C531			CK73GB1H101J	CHIP C	100PF J	L6,7			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
C532			CK73GB1H101J	CHIP C	100PF J	L8			L40-1271-36	SMALL FIXED INDUCTOR(12NH)	
C534			CK73GB1H230K	CHIP C	30PF J	L9			L40-3971-36	SMALL FIXED INDUCTOR(39NH)	
C535			CK73GB1H102K	CHIP C	0.010UF K	L10			L40-1571-36	SMALL FIXED INDUCTOR(15NH)	
C536			CK73GB1H100D	CHIP C	10PF D	L11			L40-2771-36	SMALL FIXED INDUCTOR(27NH)	
C537			C82-0105-05	CHIP-TAN	2.2UF 6.3WV	L12,14			L40-8871-36	SMALL FIXED INDUCTOR(88NH)	
C538			CK73GB1E22K	CHIP C	0.022UF K	L15			L34-1228-05	AIR-CORE COIL(19.5T)	
C540			CK73GB1H102K	CHIP C	100PF K	L16			L34-4404-05	AIR-CORE COIL(0.5T)	
C541			CK73GB1H101D	CHIP C	10PF D	L17			L34-0142-05	AIR-CORE COIL(0.5T)	
C542			CK73GB1H103K	CHIP C	0.010UF K	L18			L34-0855-05	AIR-CORE COIL(0.5T)	
C543,544			C82-0084-05	CHIP-TAN	1.0UF 16WV	L19			L34-1185-05	AIR-CORE COIL(2.5T)	
C546			CK73GB1C104K	CHIP C	0.10UF K	L20			L34-0439-05	AIR-CORE COIL(0.4T)	
C547			CK73GB1C47K	CHIP C	4.7UF K	L21			L34-1239-05	AIR-CORE COIL(10.5T)	
C548			CK73GB1H102K	CHIP C	100PF K	L22			L34-1185-05	AIR-CORE COIL(2.5T)	
C550			CK73GB1H103K	CHIP C	0.010UF K	L23			L34-0439-05	AIR-CORE COIL(0.4T)	
C551,552			CK73GB1C104K	CHIP C	0.10UF K	L24			L34-1058-05	AIR-CORE COIL(2.5T)	
C553			CK73GB1H103K	CHIP C	0.010UF K	L25			L34-1278-05	AIR-CORE COIL(1T)	
C554			C82-0606-05	CHIP-TAN	4.7UF 10WV	L26			L34-1052-05	AIR-CORE COIL(1.5T)	
C555			CK73GB1A105K	CHIP C	1.0UF K	L27			L34-0439-05	AIR-CORE COIL(0.4T)	
C556			CK73GB1C104K	CHIP C	0.10UF K	L28			L34-4402-05	AIR-CORE COIL(2.5T)	
C557,558			CK73GB1H471K	CHIP C	470PF K	L29			L34-0439-05	AIR-CORE COIL(0.4T)	
C559			CK73GB1H272K	CHIP C	2700PF K	L30			L34-4402-05	AIR-CORE COIL(2.5T)	
C560,561			CK73GB1H101J	CHIP C	100PF J	L31			L34-4402-05	AIR-CORE COIL(2.5T)	
C562			CK73GB1H103K	CHIP C	0.010UF K	L32			L34-4402-05	AIR-CORE COIL(2.5T)	
C563			CK73GB1H101J	CHIP C	100PF J	L33			L34-4402-05	AIR-CORE COIL(2.5T)	
C564			CK73GB1H102K	CHIP C	100PF K	L34			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C565,566			CK73GB1H103K	CHIP C	0.010UF K	L35			L40-3275-54	SMALL FIXED INDUCTOR(82NH)	
C567			CK73GB1H103K	CHIP C	0.010UF K	L36			L40-1071-36	SMALL FIXED INDUCTOR(10NH)	
C568-571			CK73GB1A105K	CHIP C	1.0UF K	L37-40			L40-8851-36	SMALL FIXED INDUCTOR(88NH)	
C572-575			CK73GB1H101J	CHIP C	100PF J	L41			L40-1271-36	SMALL FIXED INDUCTOR(12NH)	
C576,577			CK73GB1H103K	CHIP C	0.010UF K	L41			L79-1432-05	FILTER (435KHZ)	E, E3
C578			CK73GB1H103K	CHIP C	0.010UF K	L41			L79-1432-05	FILTER (435KHZ)	M2,M4

PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
L41			L76-1433-05	FILTER (444MHZ)	K	R46.47			RK73GB1J472J	CHIP R	4.7K J 1/8W
L42			L40-6861-36	SMALL FIXED INDUCTOR(8.8NH)		R48			RK73GB1J471J	CHIP R	470 J 1/8W
L43			L34-4543-05	COIL (2.5T)		R49.50			RK73GB1J473J	CHIP R	47K J 1/8W
L44			L40-1075-44	SMALL FIXED INDUCTOR(10.0NH)		R51			RK73GB1J102J	CHIP R	10K J 1/8W
L45			L40-2771-36	SMALL FIXED INDUCTOR(27NH)		R52			RK73GB1J471J	CHIP R	47 J 1/8W
L46			L40-2271-36	SMALL FIXED INDUCTOR(22NH)		R52			R92-1252-05	CHIP R	0 OHM
L48			L34-4542-05	COIL (3T)		R53			RK73GB1J471J	CHIP R	470 J 1/8W
L49			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		R54			RK73GB1J222J	CHIP R	2.2K J 1/8W
L51			L40-1051-37	SMALL FIXED INDUCTOR(10.00NH)		R55			RK73GB1J102J	CHIP R	1.0K J 1/8W
L52			L34-4542-05	COIL (3T)		R56			RK73GB1J470J	CHIP R	47 J 1/8W
L53			L79-1525-05	FILTER MODULE(435MHz)	E.E3	R58			R92-1252-05	CHIP R	0 OHM
L53			L79-1525-05	FILTER MODULE(435MHz)	MZ.M4	R57.58			RK73GB1J222J	CHIP R	2.2K J 1/8W
L53			L79-1525-05	FILTER MODULE(444MHz)	K	R59			RK73GB1J100J	CHIP R	10 J 1/8W
L54			L40-3971-36	SMALL FIXED INDUCTOR(39NH)		R60			RK73GB1J222J	CHIP R	2.2K J 1/8W
L55			L40-1561-37	SMALL FIXED INDUCTOR(150NH)		R61			RK73GB1J223J	CHIP R	22K J 1/8W
L57			L40-2271-36	SMALL FIXED INDUCTOR(22NH)		R62			RK73GB1J382J	CHIP R	8.2K J 1/8W
L59			L40-1581-37	SMALL FIXED INDUCTOR(150NH)		R63			RK73GB1J222J	CHIP R	2.2K J 1/8W
L59			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		R64			RK73GB1J100J	CHIP R	10 J 1/8W
L60			L40-9661-37	SMALL FIXED INDUCTOR(950NH)		R65			RK73GB1J100J	CHIP R	100 J 1/8W
L61			L40-1281-37	SMALL FIXED INDUCTOR(120NH)		R66.67			RK73GB1J222J	CHIP R	2.2K J 1/8W
L63			L40-6861-36	SMALL FIXED INDUCTOR(8.8NH)		R68			RK73GB1J550J	CHIP R	56 J 1/8W
L601			L52-0131-05	FERRITE CHIP		R69			RK73GB1J471J	CHIP R	470 J 1/8W
X1			L77-1573-05	CRYSTAL RESONATOR(12.8MHz)		R70			RK73GB1J221J	CHIP R	220 J 1/8W
X501			L77-1476-05	CRYSTAL RESONATOR(9.19430MHz)		R71			RK73GB1J487J	CHIP R	4.7 J 1/8W
XF1			L71-6481-05	MCU (S8C215B)		R72			RK73GB1J470J	CHIP R	47 J 1/8W
CP501			R90-0724-05	MULTI-COMP 1K X4		R73			RK73GB1J152J	CHIP R	1.5K J 1/8W
CP502			R90-0714-05	MULTI-COMP 18K X4		R74			RK73GB1J100J	CHIP R	10 J 1/8W
R1			R92-0685-05	CHIP R 22 J 1/2W		R75			RK73GB1J222J	CHIP R	2.2K J 1/8W
R2			RK73GB1J102J	CHIP R 1.0K J 1/8W		R76			RK73GB1J68J	CHIP R	680 J 1/8W
R3			RK73GB1J102J	CHIP R 100 J 1/8W		R77			RK73GB1J100J	CHIP R	10 J 1/8W
R4			RK73GB1J471J	CHIP R 470 J 1/8W		R78			RK73GB1J331J	CHIP R	330 J 1/8W
R5			RK73GB1J473J	CHIP R 47K J 1/8W		R79			RK73GB1J152J	CHIP R	1.5K J 1/8W
R7.8			RK73GB1J473J	CHIP R 47K J 1/8W		R80			R92-0885-05	CHIP R	22 J 1/2W
R10.11			RK73GB1J331J	CHIP R 330 J 1/8W		R82			R92-0885-05	CHIP R	22 J 1/2W
R12.13			RK73GB1J222J	CHIP R 2.2K J 1/8W		R85			RK73GB1A821J	CHIP R	820 J 1/10W
R14.15			RK73GB1J472J	CHIP R 4.7K J 1/8W		R86			RK73GB1A681J	CHIP R	5.6 J 1/10W
R16			RK73GB1J223J	CHIP R 22K J 1/8W		R87			R92-0870-05	CHIP R	0 OHM
R17			RK73GB1J223J	CHIP R 22 J 1/8W		R88			R92-2561-05	RESISTOR	220 1W
R18			RK73GB1J223J	CHIP R 22K J 1/8W		R89.90			R92-1213-05	CHIP R	100 J 1/2W
R19-21			RK73GB1J102J	CHIP R 1.0K J 1/8W		R91.92			RK73GB1J103J	CHIP R	10K J 1/8W
R22			RK73GB1J273J	CHIP R 27K J 1/8W		R93			R92-2081-05	RESISTOR	220 1W
R23			RK73GB1J183J	CHIP R 18K J 1/8W		R94			RK73GB1J222J	CHIP R	2.2K J 1/8W
R24			R92-1252-05	CHIP R 0 OHM		R95			RK73GB1J153J	CHIP R	15K J 1/8W
R25			RK73GB1J333J	CHIP R 33K J 1/8W		R96			RK73GB1J153J	CHIP R	15K J 1/8W
R26			RK73GB1J332J	CHIP R 3.3K J 1/8W		R97			RK73GB1J222J	CHIP R	2.2K J 1/8W
R27			RK73GB1J103J	CHIP R 10K J 1/8W		R98			RK73GB1J883J	CHIP R	88K J 1/8W
R30			RK73GB1J101J	CHIP R 100 J 1/8W		R99			RK73GB1J223J	CHIP R	22K J 1/8W
R31			RK73GB1J473J	CHIP R 47K J 1/8W		R100			RK73GB1J222J	CHIP R	2.2K J 1/8W
R32			RK73GB1J472J	CHIP R 4.7K J 1/8W		R101			RK73GB1J103J	CHIP R	10K J 1/8W
R33			RK73GB1J122J	CHIP R 1.2K J 1/8W		R102			RK73GB1J223J	CHIP R	22K J 1/8W
R34			RK73GB1J301J	CHIP R 3.3K J 1/8W		R103			RK73GB1J103J	CHIP R	10K J 1/8W
R35			RK73GB1J122J	CHIP R 1.2K J 1/8W		R104			RK73GB1J883J	CHIP R	88K J 1/8W
R38			RK73GB1J331J	CHIP R 330 J 1/8W		R105			RK73GB1J103J	CHIP R	10K J 1/8W
R37			RK73GB1J182J	CHIP R 1.8K J 1/8W		R106			RK73GB1J222J	CHIP R	2.2K J 1/8W
R38			RK73GB1J331J	CHIP R 330 J 1/8W		R107			RK73GB1J473J	CHIP R	47K J 1/8W
R39			RK73GB1J471J	CHIP R 470 J 1/8W		R108			RK73GB1J223J	CHIP R	22K J 1/8W
R40.41			RK73GB1J332J	CHIP R 3.3K J 1/8W		R109			RK73GB1J471J	CHIP R	470 J 1/8W
R42			RK73GB1J473J	CHIP R 47K J 1/8W		R110			RK73GB1J103J	CHIP R	10K J 1/8W
R43			RK73GB1J332J	CHIP R 3.3K J 1/8W		R111			R92-1252-05	CHIP R	0 OHM
R44.45			RK73GB1J101J	CHIP R 100 J 1/8W		R112			RK73GB1J101J	CHIP R	100 J 1/8W

PARTS LIST

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Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R113-117			RK73GB1J103J	CHIP R	18K J 1/16W	R189			RK73GB1J122J	CHIP R	1.2K J 1/16W
R118-122			RK73GB1J182J	CHIP R	1.8K J 1/16W	R190			RK73GB1J471J	CHIP R	470 J 1/16W
R123			RK73GB1J222J	CHIP R	2.2K J 1/16W	R191			RK73GB1J101J	CHIP R	100 J 1/16W
R124			R92-1252-05	CHIP R	0 OHM	R192			RK73GB1J104J	CHIP R	100K J 1/16W
R125			RK73GB1J184J	CHIP R	180K J 1/16W	R193			RK73GB1J104J	CHIP R	100K J 1/16W
R126			RK73GB1J223J	CHIP R	2.2K J 1/16W	R194			RK73GB1J272J	CHIP R	2.7K J 1/16W
R127			RK73GB1J101J	CHIP R	100 J 1/16W	R195			RK73GB1J103J	CHIP R	10K J 1/16W
R128			RK73GB1J104J	CHIP R	100K J 1/16W	R196			RK73GB1J103J	CHIP R	10K J 1/16W
R129			RK73GB1J222J	CHIP R	2.2K J 1/16W	R197			R92-1252-05	CHIP R	0 OHM
R130			RK73GB1J333J	CHIP R	33K J 1/16W	R198			RK73GB1J472J	CHIP R	4.7 J 1/16W
R131			RK73GB1J271J	CHIP R	2.7K J 1/16W	R199			RK73GB1J487J	CHIP R	4.7 J 1/16W
R132			RK73GB1J154J	CHIP R	150K J 1/16W	R200			R92-1252-05	CHIP R	0 OHM
R133			RK73GB1J823J	CHIP R	82K J 1/16W	R201			RK73GB1J334J	CHIP R	330K J 1/16W
R134			RK73GB1J472J	CHIP R	4.7K J 1/16W	R202			R92-1252-05	CHIP R	0 OHM
R135			RK73GB1J104J	CHIP R	100K J 1/16W	R203			RK73GB1J475J	CHIP R	4.7 J 1/16W
R136,137			R92-1252-05	CHIP R	0 OHM	R204			RK73GB1J222J	CHIP R	2.2K J 1/16W
R138			RK73GB1J473J	CHIP R	4.7K J 1/16W	R205			RK73GB1J272J	CHIP R	2.7K J 1/16W
R139			RK73GB1J472J	CHIP R	4.7K J 1/16W	R206			RK73GB1J103J	CHIP R	10K J 1/16W
R140			RK73GB1J222J	CHIP R	2.2K J 1/16W	R207			RK73GB1J474J	CHIP R	470K J 1/16W
R141			RK73GB1J471J	CHIP R	4.7K J 1/16W	R208			RK73GB1J102J	CHIP R	1.0K J 1/16W
R142			RK73GB1J222J	CHIP R	2.2K J 1/16W	R209			RK73GB1J182J	CHIP R	1.8K J 1/16W
R143			RK73GB1J471J	CHIP R	4.7K J 1/16W	R210			RK73GB1J473J	CHIP R	4.7K J 1/16W
R144			RK73GB1J101J	CHIP R	100 J 1/16W	R211			RK73GB1J331J	CHIP R	330 J 1/16W
R145			R92-1252-05	CHIP R	0 OHM	R212			RK73GB1J104J	CHIP R	100K J 1/16W
R146			RK73GB1J222J	CHIP R	2.2K J 1/16W	R213			RK73GB1J332J	CHIP R	3.3K J 1/16W
R147			RK73GB1J101J	CHIP R	100 J 1/16W	R214,215			RK73GB1J332J	CHIP R	3.3K J 1/16W
R148			R92-1252-05	CHIP R	0 OHM	R216			RK73GB1J102J	CHIP R	1.0K J 1/16W
R149,150			RK73GB1J104J	CHIP R	100K J 1/16W	R217			R92-1276-05	CHIP R	820 J 1/4W
R151			RK73GB1J154J	CHIP R	150 J 1/16W	R218			RK73GB1J103J	CHIP R	10K J 1/16W
R152			RK73GB1J104J	CHIP R	100K J 1/16W	R219			R92-1252-05	CHIP R	0 OHM
R153			RK73GB1J184J	CHIP R	180K J 1/16W	R220			RK73GB1J182J	CHIP R	1.8K J 1/16W
R154			RK73GB1J222J	CHIP R	2.2K J 1/16W	R221			R92-1252-05	CHIP R	0 OHM
R155			RK73GB1J472J	CHIP R	4.7K J 1/16W	R222			R92-1252-05	CHIP R	0 OHM
R156			RK73GB1J104J	CHIP R	100K J 1/16W	R223			R92-1252-05	CHIP R	0 OHM
R157			RK73GB1J222J	CHIP R	2.2K J 1/16W	R224			R92-1252-05	CHIP R	0 OHM
R158			RK73GB1J182J	CHIP R	1.8K J 1/16W	R225			RK73GB1J333J	CHIP R	33K J 1/16W
R159			RK73GB1J471J	CHIP R	4.7K J 1/16W	R226			RK73GB1J104J	CHIP R	100K J 1/16W
R160			RK73GB1J472J	CHIP R	4.7K J 1/16W	R227			RK73GB1J104J	CHIP R	100K J 1/16W
R161,162			R92-1252-05	CHIP R	0 OHM	R228			RK73GB1J222J	CHIP R	2.2K J 1/16W
R163,164			RK73GB1J221J	CHIP R	2.2K J 1/16W	R229			R92-1252-05	CHIP R	0 OHM
R165			RK73GB1J152J	CHIP R	1.5K J 1/16W	R230			RK73GB1J104J	CHIP R	100K J 1/16W
R166			RK73GB1J472J	CHIP R	4.7K J 1/16W	R231			RK73GB1J184J	CHIP R	180K J 1/16W
R167			RK73GB1J471J	CHIP R	4.7K J 1/16W	R232,235			RK73GB1J471J	CHIP R	4.7K J 1/16W
R172			RK73GB1J102J	CHIP R	1.0K J 1/16W	R233			RK73GB1J472J	CHIP R	4.7K J 1/16W
R173			RK73GB1J473J	CHIP R	4.7K J 1/16W	R234			R92-1252-05	CHIP R	0 OHM
R174,175			RK73GB1J222J	CHIP R	2.2K J 1/16W	R235			RK73GB1J104J	CHIP R	100K J 1/16W
R176			RK73GB1J222J	CHIP R	2.2K J 1/16W	R236			RK73GB1J102J	CHIP R	1.0K J 1/16W
R177			RK73GB1J222J	CHIP R	2.2K J 1/16W	R237			RK73GB1J473J	CHIP R	4.7K J 1/16W
R178			RK73GB1J470J	CHIP R	4.7 J 1/16W	R238			RK73GB1J103J	CHIP R	10K J 1/16W
R179,180			RK73GB1J101J	CHIP R	100 J 1/16W	R239			RK73GB1J102J	CHIP R	1.0K J 1/16W
R181			RK73GB1J102J	CHIP R	1.0K J 1/16W	R240			RK73GB1J223J	CHIP R	2.2K J 1/16W
R182			R92-1252-05	CHIP R	0 OHM	R241			RK73GB1J103J	CHIP R	10K J 1/16W
R183,184			RK73GB1J331J	CHIP R	330 J 1/16W	R242			RK73GB1J364J	CHIP R	360K J 1/16W
R185			RK73GB1J124J	CHIP R	120K J 1/16W	R243			RK73GB1J184J	CHIP R	180K J 1/16W
R186			RK73GB1J124J	CHIP R	120K J 1/16W	R244			RK73GB1J364J	CHIP R	360K J 1/16W
R187			RK73GB1J103J	CHIP R	10K J 1/16W	R245			RK73GB1J473J	CHIP R	4.7K J 1/16W
R188			RK73GB1J103J	CHIP R	10K J 1/16W	R246			RK73GB1J103J	CHIP R	10K J 1/16W

PARTS LIST

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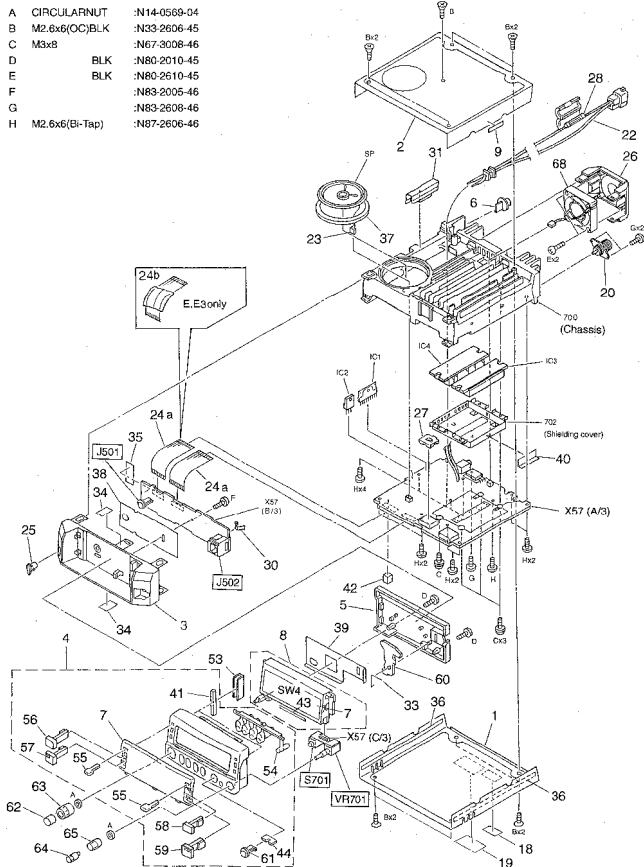
Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R525.528			RT73GB1J102J	CHIP R		R604			RT73GB1J104J	CHIP R	100K J 1/16W
R527			RT73GB1J473J	CHIP R		R605			RT73GB1J103J	CHIP R	10K J 1/16W
R528			RT73GB1J109J	CHIP R		R606			RT73GB1J102J	CHIP R	1.0K J 1/16W
R529			RT73GB1J323J	CHIP R		R607			RT73GB1J474J	CHIP R	470K J 1/16W
R530.531			RT73GB1J222J	CHIP R		R608			RT73GB1J101J	CHIP R	100 J 1/16W
R532			RT73GB1J473J	CHIP R	K,M2,M4	R609			R52-1252-05	CHIP R	0 OHM
R533			RT73GB1J884J	CHIP R		R610			RT73GB1J473J	CHIP R	47K J 1/16W
R535			RT73GB1J473J	CHIP R		R611			RT73GB1J105J	CHIP R	1.0M J 1/16W
R536			RT73GB1J160J	CHIP R		R612			RT73GB1J104J	CHIP R	100K J 1/16W
R537			RT73GB1J472J	CHIP R		R614			RT73GB1J471J	CHIP R	470 J 1/16W
R538.539			RT73GB1J473J	CHIP R		R615			RT73GB1J473J	CHIP R	47K J 1/16W
R540			RT73GB1J103J	CHIP R		R616			RT73GB1J103J	CHIP R	10K J 1/16W
R541			RT73GB1J184J	CHIP R	K,M2,M4	R6791	3A		R31-9619-05	VARIABLE RESISTOR(VOL/SQU) 50K	E.E3
R541			RT73GB1J234J	CHIP R	E.E3	S501			S70-0424-05	FACT SWITCH(HARD RESET)	E.E3
R542			RT73GB1J104J	CHIP R	K,M2,M4	S701	3B		S70-0461-05	FACT SWITCH(HARD)	E.E3,M2,M4
R543			RT73GB1J103J	CHIP R	K,M2,M4				MA25077	DIODE	
R544			RT73GB1J473J	CHIP R					MA25111	DIODE	
R545			RT73GB1J274J	CHIP R					1SS355	DIODE	
R546			R52-0570-05	CHIP R	MA,E.E3				MA25077	DIODE	
R547.548			R52-1252-05	CHIP R					1SS355	DIODE	
R549			R52-0670-05	CHIP R					DA221	DIODE	
R550			R52-0670-05	CHIP R	E.E3				HVU131	DIODE	
R551			R52-0670-05	CHIP R	K,M2				MA44P-R33	DIODE	
R552			RT73GB1J234J	CHIP R	K,E.E3				M1809	DIODE	
R554			RT73GB1J473J	CHIP R					MA742	DIODE	
R555			RT73GB1J123J	CHIP R					DAN222	DIODE	
R556			RT73GB1J223J	CHIP R					MA742	DIODE	
R557			RT73GB1J104J	CHIP R					UDZ10B1	ZENER DIODE	
R558			RT73GB1J473J	CHIP R					UDZ10B1	ZENER DIODE	
R559			RT73GB1J822J	CHIP R	K,M2,M4				MA742	DIODE	
R560			RT73GB1J123J	CHIP R					MA25077	DIODE	
R562			RT73GB1J882J	CHIP R					HVU950	VARIABLE CAPACITANCE DIODE	
R563			RT73GB1J473J	CHIP R					MA25077	DIODE	
R567			RT73GB1J074J	CHIP R	E.E3				HVU950	VARIABLE CAPACITANCE DIODE	
R569			RT73GB1J473J	CHIP R					DAN222	DIODE	
R571			RT73GB1J473J	CHIP R					D34.35	1SS355	DIODE
R572			RT73GB1J123J	CHIP R					D37.38	MA25077	DIODE
R574.575			RT73GB1J224J	CHIP R					D39	MA742	DIODE
R576			RT73GB1J102J	CHIP R					D40.41	DSM3MA1	DIODE
R577			R52-1252-05	CHIP R					D42.43	HVU131	DIODE
R578			RT73GB1J102J	CHIP R					D501	1SS355	DIODE
R579.580			RT73GB1J103J	CHIP R					D502	D17Z.5(B)	ZENER DIODE
R581			RT73GB1J473J	CHIP R					D503	MA112	DIODE
R582			RT73GB1J124J	CHIP R					D504.505	MA25111	DIODE
R583			RT73GB1J102J	CHIP R					D506.507	1SS355	DIODE
R584			RT73GB1J103J	CHIP R					D508.509	DA221	DIODE
R585			RT73GB1J472J	CHIP R					IC1	MB1511PV-60ND	IC(PLL FREQUENCY SYNTHESIZER)
R586.587			RT73GB1J473J	CHIP R					IC2.3	TC7W66FU	IC
R588			RT73GB1J102J	CHIP R					IC4	KD458	IC(VHF VCO)
R589.590			RT73GB1J473J	CHIP R					IC5	KD458	IC(VHF VCO)
R591			RT73GB1J883J	CHIP R					IC6	TAT5501F	IC(OP AMP)
R592.594			RT73GB1J473J	CHIP R					IC7	BU2690FS	IC(SHIFT/STORE REGISTER)
R595			RT73GB1J102J	CHIP R					IC8	TK10930V	IC
R596			RT73GB1J230J	CHIP R					IC9	TC44V53FU	IC(2 INPUT NAND GATE)
R597.598			RT73GB1J102J	CHIP R					IC10	TAT8105F	IC(VOLTAGE REGULATOR +5V)
R599			R52-1252-05	CHIP R					IC10	TAT8105F	IC(VOLTAGE REGULATOR +5V)
R600			RT73GB1J106J	CHIP R					IC501		
R601			RT73GB1J224J	CHIP R					IC502	TAT8105F	IC(VOLTAGE REGULATOR +5V)
R602			RT73GB1J104J	CHIP R					IC503	PS79130WR	IC(SYSTEM RESET)
R603			RT73GB1J102J	CHIP R					IC504	MC2204P	IC(O/A CONVERTER)
									IC505	LC73881M	IC(TIME DECODER)

PARTS LIST

TX-RX UNIT (X57-557X-XX)

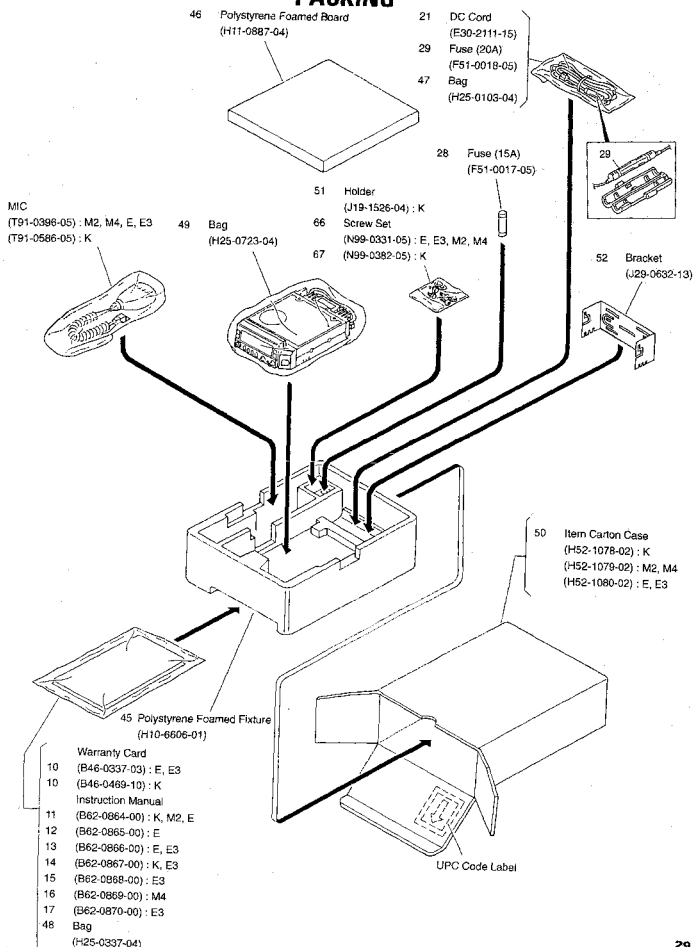
Ref. No.	Address	New parts	Parts No.	Description	Designation
IC506			AK2343	10CTCSS ENCODER/DECODER	
IC507			BU4068BCF	10ANALOG SWITCH (X4)	
IC508		*	78056GC-A708BT	10ICPU	K
IC509		*	78056GC-A718BT	10ICPU	E.E3
IC508		*	78056GC-A718BT	10ICPU	M2,M4
IC509			TA75539F	IC	
IC510		*	TC74HC4060AF	10BUFFER CONVERTER	
IC511		*	X253035B1-2.5	10EEPROM	
Q1			DT01485K	DIGITAL TRANSISTOR	
Q2			2SC4738(R)	TRANSISTOR	
Q3,4			2SC4619(P,Q)	TRANSISTOR	
Q5			2SA1832(R)	TRANSISTOR	
Q6			2SC4738(R)	TRANSISTOR	
Q11			7MA5	TRANSISTOR	
Q12			2SC4617(R)	TRANSISTOR	
Q13			2SC5108(Y)	TRANSISTOR	
Q14			2SC5066(O)	TRANSISTOR	
Q15			2SC4093	TRANSISTOR	
Q16			2SC4988	TRANSISTOR	
Q17			2SC3357	TRANSISTOR	
Q18,19			2SC1364	TRANSISTOR	
Q20			2SB15956(F)	TRANSISTOR	
Q21			2SC4617(R)	TRANSISTOR	
Q22			DTC114EE	DIGITAL TRANSISTOR	
Q23			2SC4617(R)	TRANSISTOR	
Q24			2SB1132(P,Q)	TRANSISTOR	
Q25			DTC114EE	DIGITAL TRANSISTOR	
Q26			2SA1362(Y)	TRANSISTOR	
Q27,28			2SB1132(P,Q)	TRANSISTOR	
Q29,30			2SA1362(Y)	TRANSISTOR	
Q31,32			7MA5	TRANSISTOR	
Q33			2SK239A	FET	
Q34,35			2SC5066(O)	TRANSISTOR	
Q36			2SK239A	FET	
Q37			2SK241(R)	FET	
Q38			DTC114EE	DIGITAL TRANSISTOR	
Q39			2SC5066(O)	TRANSISTOR	
Q40			2SK239A	FET	
Q42-44			DTC114EE	DIGITAL TRANSISTOR	
Q45,46			2SK241(R)	FET	
Q47			2SK578(Y)	FET	
Q48,49			2SC4619(P,Q)	TRANSISTOR	
Q50			2SK1824	FET	
Q51			DTC114EE	DIGITAL TRANSISTOR	
Q52			2SC4738(R)	TRANSISTOR	
Q53			2SB1386(R)	TRANSISTOR	
Q54			2SC4617(R)	TRANSISTOR	
Q55			2SK1824	FET	E.E3
Q55			2SK1824	FET	M2,M4
Q56			2SK1824	FET	
Q60,61			2SK1824	FET	E.E3
Q60,61			2SK1824	FET	M2,M4
Q62			DTC114EE	DIGITAL TRANSISTOR	E.E3
Q62			DTC114EE	DIGITAL TRANSISTOR	M2,M4
Q601			2SC4738(R)	TRANSISTOR	
Q502			2SA1519	TRANSISTOR	
Q503			2SC4738(R)	TRANSISTOR	
Q504			DTC114EE	DIGITAL TRANSISTOR	E.E3,M2,M4
Q505,506			2SC4738(R)	TRANSISTOR	
TH1			15T-152-6500F	THERMISTOR (TRK)	

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PACKING



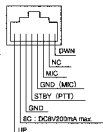
ADJUSTMENT

Measuring Equipment for Adjustment

1. **Digital voltmeter (D.V.M)**
Input impedance: High
2. **RF valve voltmeter (RF V.M)**
Input impedance: $1\text{M}\Omega$ or more, 2pF or less
Voltage range: Full scale = 10mV to 300V
Measurable frequency range: up to 450MHz
3. **Frequency counter (f.counter)**
Input sensitivity: About 50mV
Measurable frequency: 450MHz or more
4. **DC power supply**
Voltage: Variable in the range 10 to 17V
Current: 13A or more
5. **Power meter**
Measurement power: 60W , 30W , 10W
Impedance: 50Ω
Measurable frequency: 450MHz
6. **AF valve voltmeter (AF V.M)**
Input impedance: $1\text{M}\Omega$ or more
Voltage range: Full scale = 1mV to 30V
Measurable frequency range: 50Hz to 10kHz
7. **AF generator (AG)**
Output frequency: 100Hz to 10kHz
Output voltage: 0.5mV to 1V
8. **Linear detector**
Measurable frequency: 450MHz
9. **Spectrum analyzer**
Measurable frequency: 450MHz
10. **Directional coupler**
11. **Oscilloscope**
High sensitivity with horizontal input terminal
12. **Standard signal generator (SSG)**
The standard signal generator must be able to generate the 1GHz band frequencies and vary the amplitude and frequency.
Output: -133dBm to greater than -13dBm
13. **Dummy load (for AF)**
 8Ω , about 5W
14. **Distortion meter**
15. **Adjustment jig**

Preparation

●Microphone connector

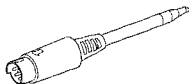


**Microphone socket
(as viewed from the front of the set)**

- Use an insulated rod, such as a plastic rod, for adjustment (especially for trimmers, coils, etc.).
- To protect the signal generator, never connect the microphone to the microphone socket when the receiver section is adjusted.
- Before the power cord is connected, make sure the power switch is off.
- Without specification of SSG, standard modulation is applied (MOD : 1kHz , DEV : $\pm 3\text{kHz}$, AF output : $0.63\text{V}/8\Omega$)
- See the instruction manual for transmit and receive operations.
- Use service jigs as necessary.
- It is good to copy critical data with clone operations before making adjustments. For details on clone operations, see "Reference" on Page 39.

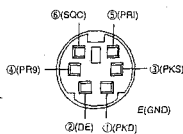
ADJUSTMENT

Adjustment Service Jig

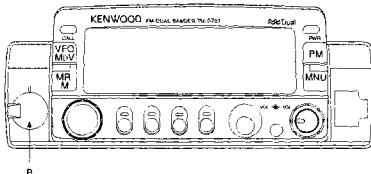


Data terminal short plug (W05-0611-00)

●Service jigs usage



Pin assignment seen from direction B



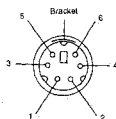
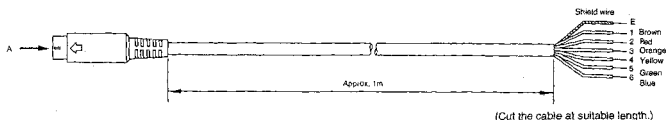
Short plug

Terminals ③ and ⑤ are short circuited.

[Reference] ③ PKS (SEND switch for DATA terminal)
Connect PTT output. If PKS is set to "L", data are sent and the microphone will be mute.
⑤ SQC (Squelch control output)
This outputs squelch control output.

●Service jigs specification

Plug cable with 6P mini-DIN : Model PG-5A (cable parts No. : E30-3202-05) processed like under fig.

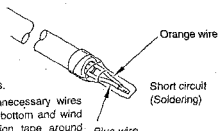


Pin assignment seen from direction A

DIN pin No.	Color
1	Brown
2	Red
(3)	Orange
4	Yellow
5	Green
(6)	Blue
Bracket	Shield

Join these DIN pins.

Cut unnecessary wires at the bottom and wind insulation tape around top edge.

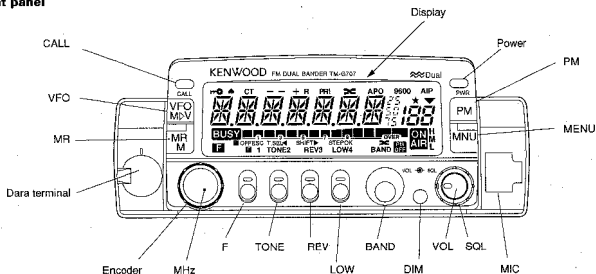


TM-G707A/E

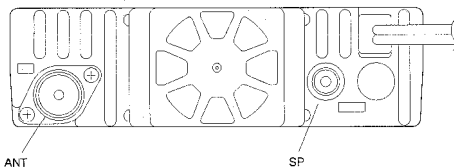
ADJUSTMENT

Parts layout

Front panel



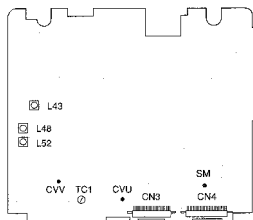
Rear panel



Adjustment parts layout

● TX-RX UNIT (Unit under)

- Adjustment parts No.
TC1: Transmission frequency (UHF)
L43: BPF(VHF)
L48: BPF(VHF)
L52: BPF(VHF)
- Test point
CVV: VCO lock voltage (VHF)
CVU: VCO lock voltage (UHF)
SM: BPF



ADJUSTMENT

Adjustment mode

- This is the adjustment mode for making adjustments or setting levels.
- The following items can be adjusted or set.
 - A Squelch release sensitivity (SQL.)
 - B S meter light-up start level (S.-1)
 - C S meter all light-up level (S.ALL.)
 - D Transmission output (TX.POW.)
 - E Transmission modulation factor (DEVI.)
 - F VHF BPF (B.P.F.1, B.P.F.2, B.P.F.3, B.P.F.4)

Adjustment mode startup method

1. Switch OFF **[PWR]** and insert the adjustment plug at the set data terminal.
2. Switch ON **[PWR]** while pressing the **[F]** key and the **[TONE]** key at the same time.
3. When the set goes into adjustment mode, the "T." mark is displayed at the head of the frequency display. See the figure below.

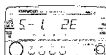


Adjustment mode display

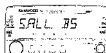
4. In adjustment mode, the desired band and frequency can be selected with **[VFO]**, **[MR]**, **[ENCODER]**, **[MIZ]** and **[BAND]**. You can also switch the transmission output with the **[LOW]** key.
5. When you press the **[MENU]** key, the set goes into adjustment enabled mode.
6. Pressing the **[◀]** or **[▶]** key switches the adjustment item to the previous item or the next item among the six adjustment items A-F (9 adjustments).
- A. Squelch release sensitivity adjustment (values set independently for 144 MHz and 430 MHz)
 - ①. When **[SQL]** is displayed with the **[◀]** or **[▶]** key, the value currently input for the squelch level is displayed and the squelch level can be adjusted. (See the figure below.)



- ②. In adjustment enabled mode, the **[VFO]** and **[MR]** keys function as the Up and Down keys, increasing/decreasing the frequency for VFO mode or the memory channel for MR mode.
- ③. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set and the adjustment mode moves to the next item. If you press the **[ESC]** key, the adjustment value is not set.
- B. S meter light-up start level (value set for each band)
 - ①. When you display **[S-1]** with the **[◀]** or **[▶]** key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)



- ②. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set.
- C. S meter all light-up level (value set for each band)
 - ①. When you display **[S.ALL.]** with the **[◀]** or **[▶]** key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)

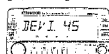


- ②. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set and the adjustment mode moves to the next item.

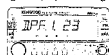
- D. Transmission output (values set independently for 144 MHz and 430 MHz)
 - ①. After setting the frequency, switch to the desired output range with the **[LOW]** key.
 - ②. When you display **[TX.POW.]** with the **[◀]** or **[▶]** key, the current setting for the output is displayed blinking. (See the figure below.)



- ③. Connect the power meter to the ANT terminal, then press the mic PTT switch to transmit. Turn the **[ENCODER]** knob to adjust the power meter reading to the prescribed output.
- ④. When the prescribed output is reached, switch the PTT switch off and press the **[OK]** key to set the adjustment value.
- E. Transmission modulation factor (values set independently for 144 MHz and 430 MHz)
 - ①. When you display **[DEVI.]** with the **[◀]** or **[▶]** key, the current setting is displayed blinking. (See the figure below.)



- ②. Connect the direct wave detector and power meter to the ANT terminal, apply the prescribed A.G. input from the MIC input terminal, and transmit. Turn the **[ENCODER]** knob to adjust the direct wave detector reading to the prescribed value.
- ③. When the prescribed value is reached, stop transmission and press the **[OK]** key to set the adjustment value.
- F. VHF BPF adjustments (4 points: near 120 MHz, 132 MHz, 160 MHz, and 170 MHz)
 - ①. When you display any of "B.P.F.1," through "B.P.F.4" with the **[◀]** or **[▶]** key, the setting is displayed blinking. (See the figure below.)




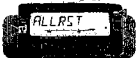

- ②. Connect the signal generator to the ANT terminal and the digital voltmeter to the TX-RX unit (soldier side) SM terminal.
- ③. Apply a signal of the prescribed output with the specified frequency from the signal generator. Turn the **[ENCODER]** knob and adjust to maximize the voltage at the SM terminal.
- ④. When the maximum value is reached, press the **[OK]** key to set the adjusted value. Set "B.P.F.2," "B.P.F.3," and "B.P.F.4" in the same manner.

Note:

- The **[ENCODER]** knob only works in frequency display and for transmission power, modulation factor, and BPF adjustments.
- When you press the **[OK]** key, the adjusted value is set and adjustment mode moves to the next item, but if you press the **[ESC]** key, the adjusted value is not set.
- To end adjustment mode, switch off the power.

ADJUSTMENT

Common section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Power voltage: 13.8V 2) VOL, SQL knob: MIN							
2. Reset	<p>■ Partial Reset (VFO)</p> <p>Use to initialize all settings except the memory channels, the Call channel, the PM channels, and Memory Channel Lockout.</p> <p>1 Press [VFO] + POWER ON.</p> <ul style="list-style-type: none"> A confirmation message appears.  <p>• To quit resetting, press any key other than [OK].</p> <p>2 Press [OK].</p> <p>■ Full Reset (Memory)</p> <p>Use to initialize all settings that you have customized.</p> <p>1 Press [MR] + POWER ON.</p> <ul style="list-style-type: none"> A confirmation message appears.  <p>• To quit resetting, press any key other than [OK].</p> <p>2 Press [OK].</p> <p>■ Hard Reset</p> <p>You can also use the RESET switch to initialize settings. Push the switch momentarily to do Partial Reset or press it for 1 second or longer to do Full Reset. No confirmation message appears. Use this switch when the microcomputer and/or the memory chip malfunction because of ambient factors.</p>  <p>Reset with the test panel removed.</p> <p>RESET switch</p>							
3. Lock voltage check	<p>1) VHF band FREQ.: 146.050MHz: K.M FREQ.: 145.050MHz: E</p> <p>2) UHF band FREQ.: 444.050MHz: K FREQ.: 435.050MHz: M, E</p> <p>3) UHF band FREQ.: 443.980MHz: K FREQ.: 434.980MHz: M, E transmission</p> <p>4) VHF band FREQ.: 145.980MHz: K, M FREQ.: 144.980MHz: E transmission</p>	D.V.M		TX-RX (A/3)	CVV (TP6)		Check	about 2.5V
					CVU (TP7)			about 4.0V
		Power Meter D.V.M		Rear panel TX-RX (A/3)	ANT CVU (TP7)			about 3.0V
					CVV (TP6)			about 2.0V
4. BPF Adjust	1) FREQ.: 146.050MHz: K, M FREQ.: 145.050MHz: E SSG: -93dBm				TX-RX (A/3)	L43 L48 L52	Voltage max	2.5V or more
5. BPF Write	Switch to adjustment mode and carry out the operations for item F. SSG: -93dBm	SSG D.V.M		Rear panel TX-RX (A/3)	ANT SM	Display Encoder [OK] key write	UP/DOWN [OK] key write	Voltage max

ADJUSTMENT

Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
1. High level input S/N and distortion check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:— 53dBm AF output:2.63V/8 Ω	SSG Oscilloscope AFV.M Distortion meter	Rear panel	ANT EXT.SP			Check	S/N 42dB or more Distortion rate:4% or less
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG:— 53dBm AF output:2.63V/8 Ω							
2. Sensitivity check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:144.050MHz FREQ.:147.925MHz:K,M FREQ.:145.925MHz:E SSG:— 122dBm:M,E SSG:— 119dBm:K AF output:0.63V/8 Ω	SSG Distortion meter Oscilloscope AFV.M	Rear panel	ANT EXT.SP			Check	SINAD 12dB or more
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E FREQ.:438.050MHz:K FREQ.:430.050MHz:M,E FREQ.:449.975MHz:K FREQ.:439.925MHz:M,E SSG:— 122dBm AF output:0.63V/8 Ω							
3. Squelch write	Switch to adjustment mode and carry out the operations for Item A. 1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:— 130dBm:M,E SSG:— 127dBm:K	SSG	Rear panel	ANT EXP.SP	Display	[OK] key	Write	
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG:— 130dBm							
4. Squelch check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG OFF Set to the point where noise will be erased by turning the squelch knob.	SSG Oscilloscope	Rear panel	ANT EXP.SP	Display		Check	Knob position: 8:00 ~ 11:00 Busy lights off.
	2) SSG:— 126dBm:M,E SSG:— 125dBm:K							Squelch open. BUSY lights on.
	3) Squelch knob: clockwise MAX							AF output disappear. BUSY lights off.
	4) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E Set to the point where noise will be erased by turning the squelch knob.							Knob position: 8:00 ~ 11:00 Busy lights off.
	5) SSG:— 126dBm							Squelch open. BUSY lights on.
	6) Squelch knob: clockwise MAX							AF output disappear. BUSY lights off.

ADJUSTMENT

Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
5. S-meter write	Switch to adjustment mode and carry out the operations for Item 8.C	SSG	Rear panel	ANT	Display	[OK] key	Write	S-meter one segment (S1) lights on.
	1) 144MHz band (S-1) FREQ.:148.050MHz:K,M FREQ.:145.050MHz:E SSG: -118dBm							
	2) 144MHz band (S.ALL) SSG: -96dBm							S-meter all segment (ALL) lights on.
	3) 430MHz band (S-1) FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG: -118dBm							S-meter one segment (S1) lights on.
	4) 430MHz band (S.ALL) SSG: -96dBm							S-meter all segment (ALL) lights on.
	5) 116MHz band (S-1) FREQ.:130.050MHz SSG: -100dBm							S-meter one segment (S1) lights on.
	6) 116MHz band (S.ALL) SSG: -85dBm							S-meter all segment (ALL) lights on.
	7) 300MHz band (S-1) FREQ.:370.100MHz SSG: -110dBm							S-meter one segment (S1) lights on.
	8) 300MHz band (S.ALL) SSG: -90dBm							S-meter all segment (ALL) lights on.
	9) 800MHz band (S-1) FREQ.:865.975MHz:K FREQ.:870.100MHz:M,E SSG: -105dBm							S-meter one segment (S1) lights on.
	10) 800MHz band (S.ALL) SSG: -85dBm							S-meter all segment (ALL) lights on.
6. S-meter check	1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG: -114 ~ -124dBm	SSG	Rear panel	ANT	Display	S-meter	Check	S-meter one segment (S1) lights on.
	2) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG: -90 ~ -102dBm							S-meter all segment (ALL) lights on.

ADJUSTMENT

Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Transmission frequency Adjust	1) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E	f counter Dummy	Rear panel	ANT	TX:RX (A/3)	TC1	444.000MHz:K 435.000MHz:M,E	Not warm up the set. $\pm 500\text{Hz}$
2-1. POWER VHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for item D. 1) POWER:LOW FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Transmission.	Power meter Ammeter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W \pm 0.5W
	2) POWER:MID Transmission.							12W \pm 1.0W
	3) POWER:MAX Transmission.							48W or more
	4) POWER:HI Transmission.				Display	Encode [OK] key	UP/DOWN write	M4:22.5W \pm 1.0W K,E,M2:MAX Power 52W or more. 50.0W \pm 1.0W MAX Power 48W or more. (MAX Power - 2W) \pm 1.0W
	5) FREQ.:144.000MHz FREQ.:147.975MHz:(K,M) FREQ.:145.975MHz:(E) POWER:HI Transmission.							K,E,M2:44 ~ 60W M4:20 ~ 25W
	6) POWER:MID Transmission.							10 ~ 14W
	7) POWER:LOW Transmission.							3 ~ 10W
2-2. POWER UHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for item D. 1) POWER:LOW FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Transmission.	Power meter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W \pm 0.5W
	2) POWER:MID FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E Transmission.							12.0W \pm 1.0W
	3) POWER:MAX FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.							33W or more
	4) POWER:HI FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.				Display	Encode [OK] key	UP/DOWN write	M4:22.5W \pm 1.0W K,E,M2:MAX Power 37W or more. 35.0W \pm 1.0W MAX Power 33W or more. (MAX Power - 2W) \pm 1.0W
	5) FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E POWER:HI Transmission.							K,E,M2:28 ~ 42W M4:20 ~ 25W
	6) POWER:MID Transmission.							10 ~ 14W
	7) POWER:LOW Transmission.							3 ~ 10W

ADJUSTMENT

Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
3. DEV write or check	For 1) and 3), switch to adjustment mode and carry out the operations for item E. 1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E AG:1kHz25mV:E AG:1kHz50mV:K,M Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN Write	$\pm 4.2\text{kHz} \pm 0.2\text{kHz}$
	2) Down AG output from the above state by 20dB (1kHz/2.5mV):E 20dB (1kHz/5.0mV):K,M Transmission	AG AF V.M		MIC			Check	$\pm 2.3 \sim 4.2\text{kHz}:E$ $\pm 2.4 \sim 4.1\text{kHz}:K,M$
	3) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E AG:1kHz25mV:E AG:1kHz50mV:K,M Transmission				Display	Encode [OK] key	UP/DOWN write	$\pm 4.2\text{kHz} \pm 0.2\text{kHz}$
	4) Down AG output from the above state by 20dB (1kHz/2.5mV):E 20dB (1kHz/5.0mV):K,M Transmission						Check	$\pm 2.3 \sim 4.2\text{kHz}:E$ $\pm 2.4 \sim 4.1\text{kHz}:K,M$
4. TONE DEV check	1) VHF band FREQ.:145.100MHz TONE:88.5Hz Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT			Check	$\pm 0.5 \sim 1.3\text{kHz}$
	2) UHF band FREQ.:445.100MHz:K FREQ.:435.100MHz:M,E TONE:88.5Hz Transmission							
5. Protection check	1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Power:Hi ANT:short circuit and open Transmission	Ammeter					Check	12.0A or less
	2) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Power:Hi ANT:short circuit and open Transmission							12.0A or less

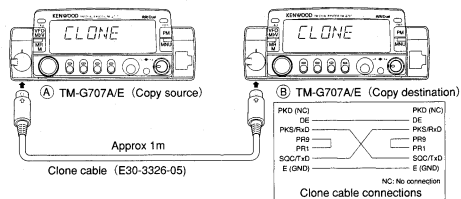
TM-G707A/E

ADJUSTMENT

[Reference]

Clone operation method

● Connection diagram



● Operations

1. Connect the data terminals on the copy source set and the copy destination set with the clone cable.
2. Start the clone function on the copy destination set by switching on its power while holding down the [F] and [REV] keys. "CLONE" appears is displayed.
3. Start the clone function on the copy source set by switching on its power while holding down the [F] and [REV] keys. "CLONE" appears is displayed.
4. Press the [CALL] key on the copy source set to start data transfer. "SEND" is displayed.

SEND

5. When clone processing ends, [END] is displayed on the copy source set.

END

6. If clone processing fails, [ERROR] is displayed on the copy source set.

ERROR

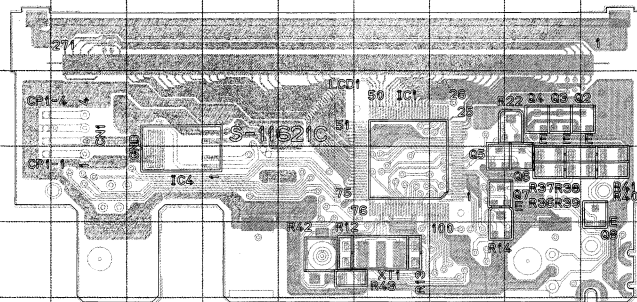
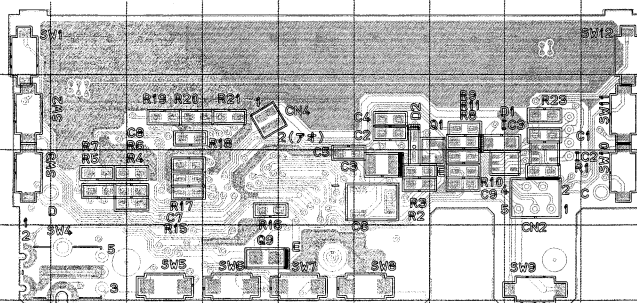
7. Switching the power OFF, then ON again returns the sets to normal operation.

Note:

- All the data in the copy destination set is overwritten.
- If clone operation are stopped midway, the data in the copy destination set may be lost.
- The two TM-G707 transceivers must be the same market versions to use the Clone function.

PC BOARD VIEWS TM-G707A/E

LCD ASSY (B38-0797-35)

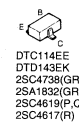
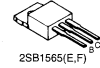
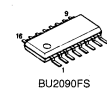
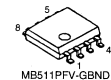
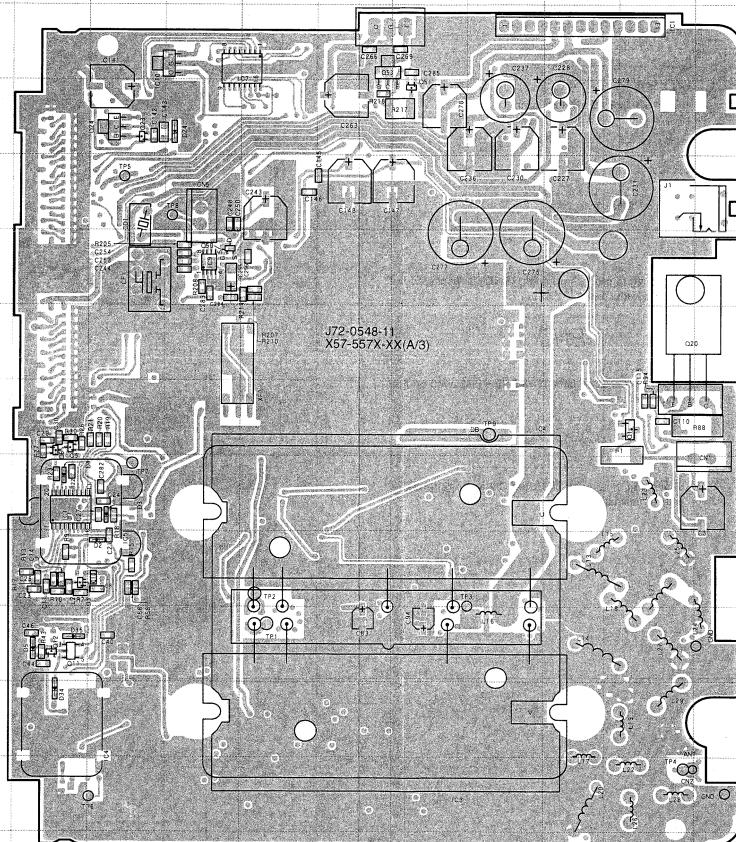
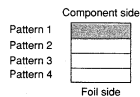


TM-G707A/E PC BOARD VIEW

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)

TX-RX UNIT (A/3)
(Component side)

Ref. NO.	Address
IC1	9F
IC4	12F
IC5	10G
IC7	3I
IC9	6H
IC10	3G
Q1	8N
Q3	10G
Q5	8F
Q6	8F
Q11	11G
Q12	11F
Q20	7O
Q23	4G
Q24	4G
Q50	6H
Q51	3K
Q53	3J
D2	10G
D3	9G
D4	9G
D5	11F
D24	4H
D34	12F
D35	11F



PC BOARD VIEW TM-G707A/E

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side view)

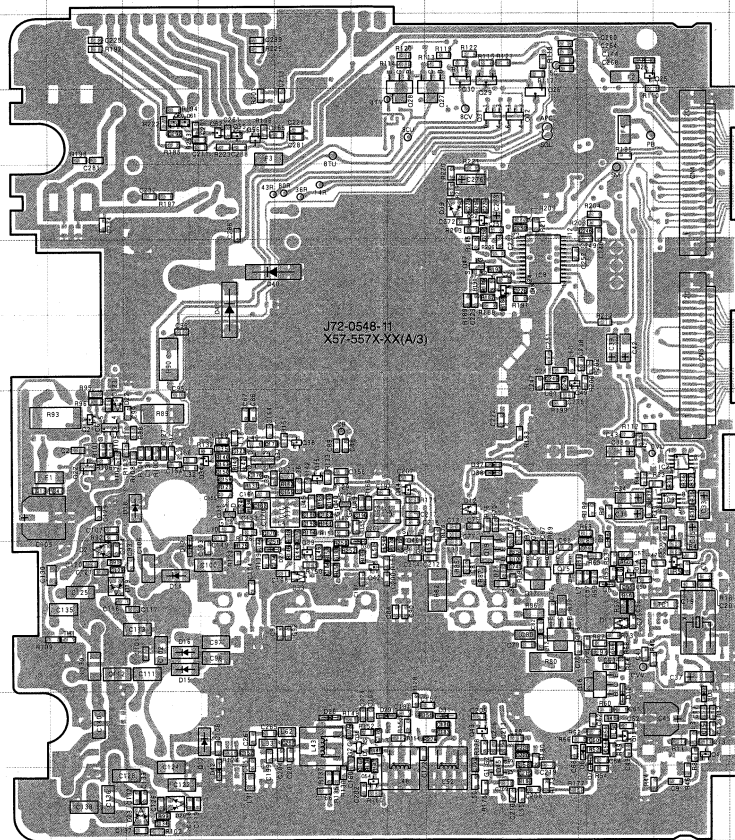
TX-RX UNIT (A/3)
(Foil side)

Ref. NO.	Address
IC2	9N
IC3	9N
IC6	8G
IC8	6M
Q2	10N
Q4	13O
Q13	12N
Q14	10N
Q15	10M
Q16	12M
Q17	10L
Q18	11M
Q19	10L
Q21	8G
Q22	9F
Q25	4N
Q26	4M
Q27	4K
Q28	4K
Q29	4L
Q30	4L
Q31	4L
Q32	4L
Q33	9H
Q34	9H
Q35	9J
Q36	12J
Q37	9I
Q38	8I
Q39	10I
Q40	9J
Q42	10J
Q43	12L
Q44	9K
Q45	13L
Q46	10K
Q47	6L
Q48	6L
Q49	8M
Q52	5L
Q54	13J
Q55	4H
Q56	4H
Q60	4G
Q61	4H
Q62	4G
D1	12O
D6	13M
D7	13M
D8	10M
D9	10M
D10	12N
D11	11M
D12	9L
D13	10H

Ref. NO.	Address
D14	10H
D15	11H
D16	11H
D17	13H
D18	9G
D19	10G
D20	13H
D21	10G
D22	8G
D23	13G
D25	3N
D27	10I
D28	12J
D29	12K
D30	10J
D31	12K
D33	10I
D37	9L
D38	9L
D39	5K
D40	6I
D41	7H
D42	13H

部品面
ハンタ面

パターン1
パターン2
パターン3
パターン4



TK10930V



DA221



2SC4093



FMA5



2SB1132(Q,R)
2SC2954



2SC3357



2SK879(Y)
3SK241(R)



SGM2014M



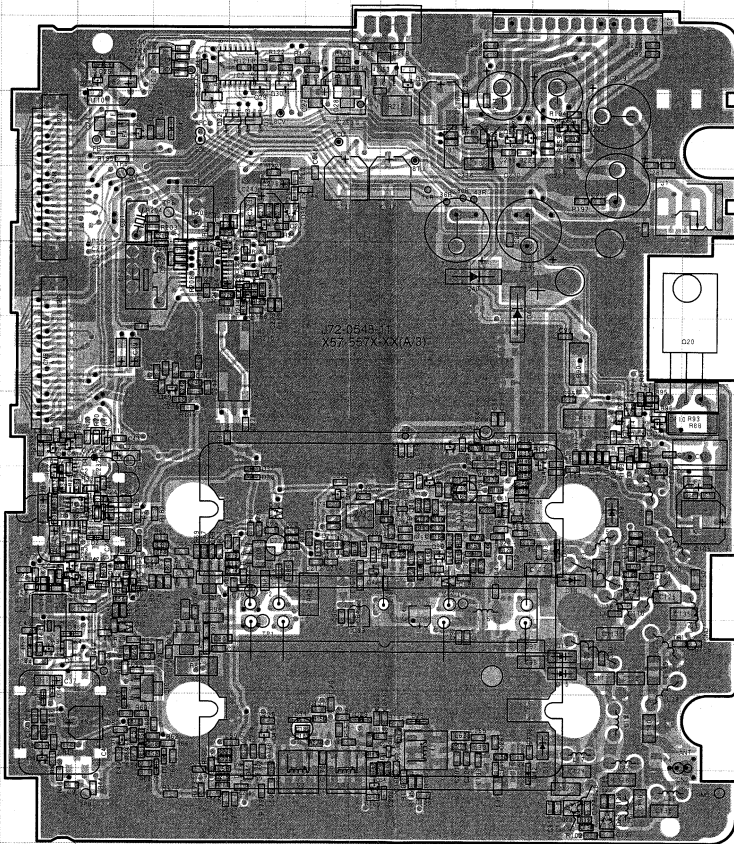
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DTD144EU
2SA1362(Y)
2SC4619(P,Q)
2SC4738(G,F)
2SC4617(R)

TM-G707A/E PC BOARD VIEW

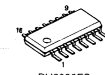
TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)

TX-RX UNIT (A/3)
(Component side) + (Foil side)

Ref. NO.	Address	Ref. NO.	Address
IC1	9G	Q49	8H
IC2	9G	Q50	6H
IC3	9G	Q51	3K
IC4	12F	Q52	5I
IC5	9G	Q53	3J
IC6	8N	Q54	13K
IC7	3I	Q55	4L
IC8	6H	Q56	4L
IC9	6H	Q60	4M
IC10	3G	Q61	4L
Q1	8N	Q62	4M
Q2	10G	D1	12F
Q3	10G	D2	10G
Q4	13F	D3	9G
Q5	8F	D4	9G
Q6	8F	D5	11F
Q11	11G	D6	13H
Q12	11F	D7	13H
Q13	12G	D8	10H
Q14	10G	D9	10H
Q15	10H	D10	12G
Q16	12H	D11	11H
Q17	10I	D12	9I
Q18	11H	D13	10M
Q19	10I	D14	10M
Q20	7O	D15	11M
Q21	8N	D16	11M
Q22	9O	D17	13M
Q23	4G	D18	9W
Q24	4G	D19	10N
Q25	4G	D20	13M
Q26	4H	D21	10N
Q27	4J	D22	8N
Q28	4K	D23	13N
Q29	4I	D24	4H
Q30	4I	D25	3G
Q31	4I	D27	10L
Q32	4I	D28	12K
Q33	9M	D29	12J
Q34	9M	D30	10K
Q35	9K	D31	12J
Q36	12K	D33	10L
Q37	9L	D34	12F
Q38	8L	D35	11F
Q39	10L	D37	9I
Q40	9K	D38	9I
Q42	10K	D39	5J
Q43	12I	D40	6L
Q44	9J	D41	7M
Q45	13I	D42	13M
Q46	10J		
Q47	6I		
Q48	6I		



MB511PFV-GBND



BU2090FS



TA78L05F



FMA5



2SB1132(Q,R)
2SC2954
2SC3357



2SK1824



2SB1565(E,F)



DTC114EE
DTC144EU
DTD143EK
2SA1362(Y)
2SA1832(GR)
2SC4619(P,Q)
2SC4738(GR)
2SC4617(R)



TK10930V



DA221



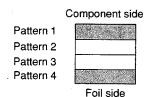
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2SK879(Y)
3SK241(R)



SGM2014M



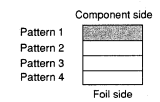
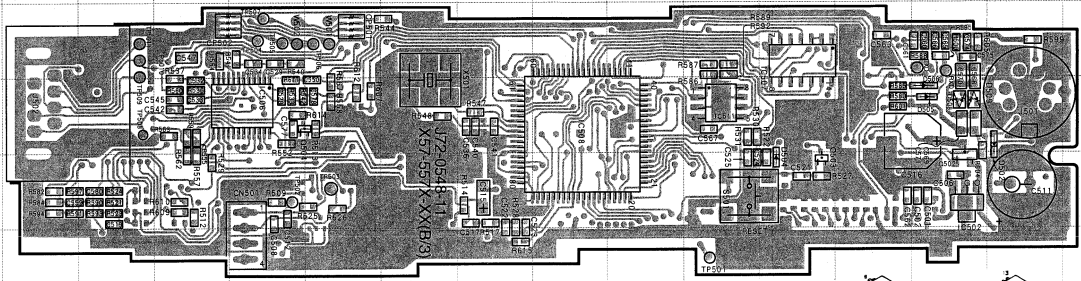
● Connect 1 and 4.

PC BOARD VIEW TM-G707A/E

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)

TX-RX UNIT (B/3)
(Component side view)

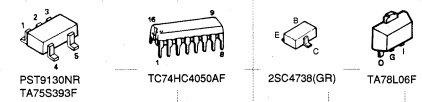
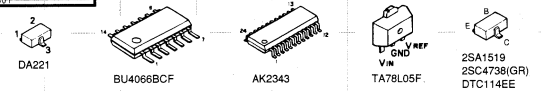
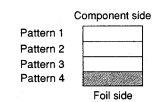
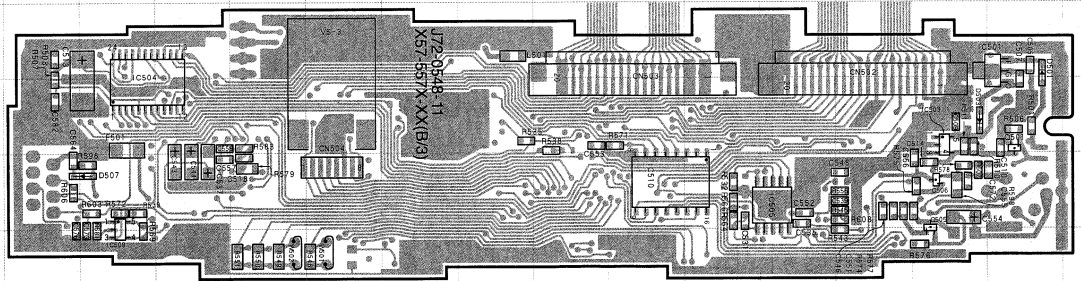
Ref. NO.	Address
IC502	50
IC506	4F
IC507	3M
IC508	4J
IC511	4L
Q502	50
Q503	5M
Q504	4F
D502	4P
D504	5M
D505	4O
D506	4O
D508	4O
D509	4O



TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side)

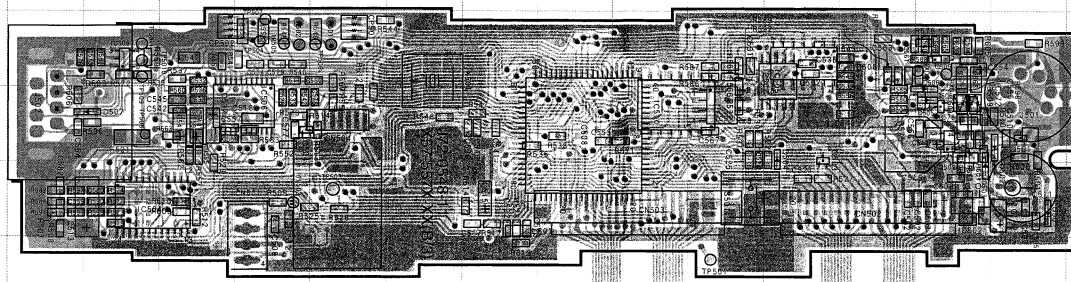
TX-RX UNIT (B/3)
(Foil side)

Ref. NO.	Address
IC501	8P
IC503	9O
IC504	9D
IC506	10C
IC509	11D
IC510	10K
Q501	9P
Q505	11O
D501	9P
D503	9C
D507	10D



TM-G707A/E PC BOARD VIEW

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)



Component
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Foil side

● Connect 1 and 4



DA221



BU4066BCF



AK2343



TA78L05F



2SA1519
2SC4738(GR)
DTC114EE



PST9130NR
TA75S33F



TC74HC4050AF

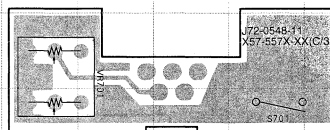


TA78L06F

TX-RX UNIT (B/3)
(Component side) + (Foil side)

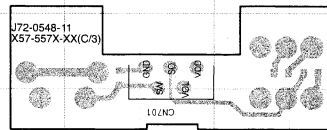
Ref. NO.	Address
IC501	5P
IC502	50
IC503	40
IC504	5D
IC506	4F
IC507	3M
IC508	4J
IC509	3D
IC510	4K
IC511	4L
Q501	4P
Q502	50
Q503	5M
Q504	4F
Q505	30
Q506	100
D501	5P
D502	4P
D503	50
D504	5M
D505	40
D506	40
D507	4D
D508	40
D509	40

TX-RX UNIT (C/3) (Component side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



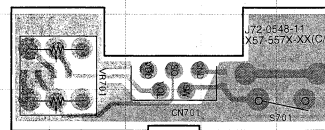
Component side
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Foil side

TX-RX UNIT (C/3) (Foil side)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



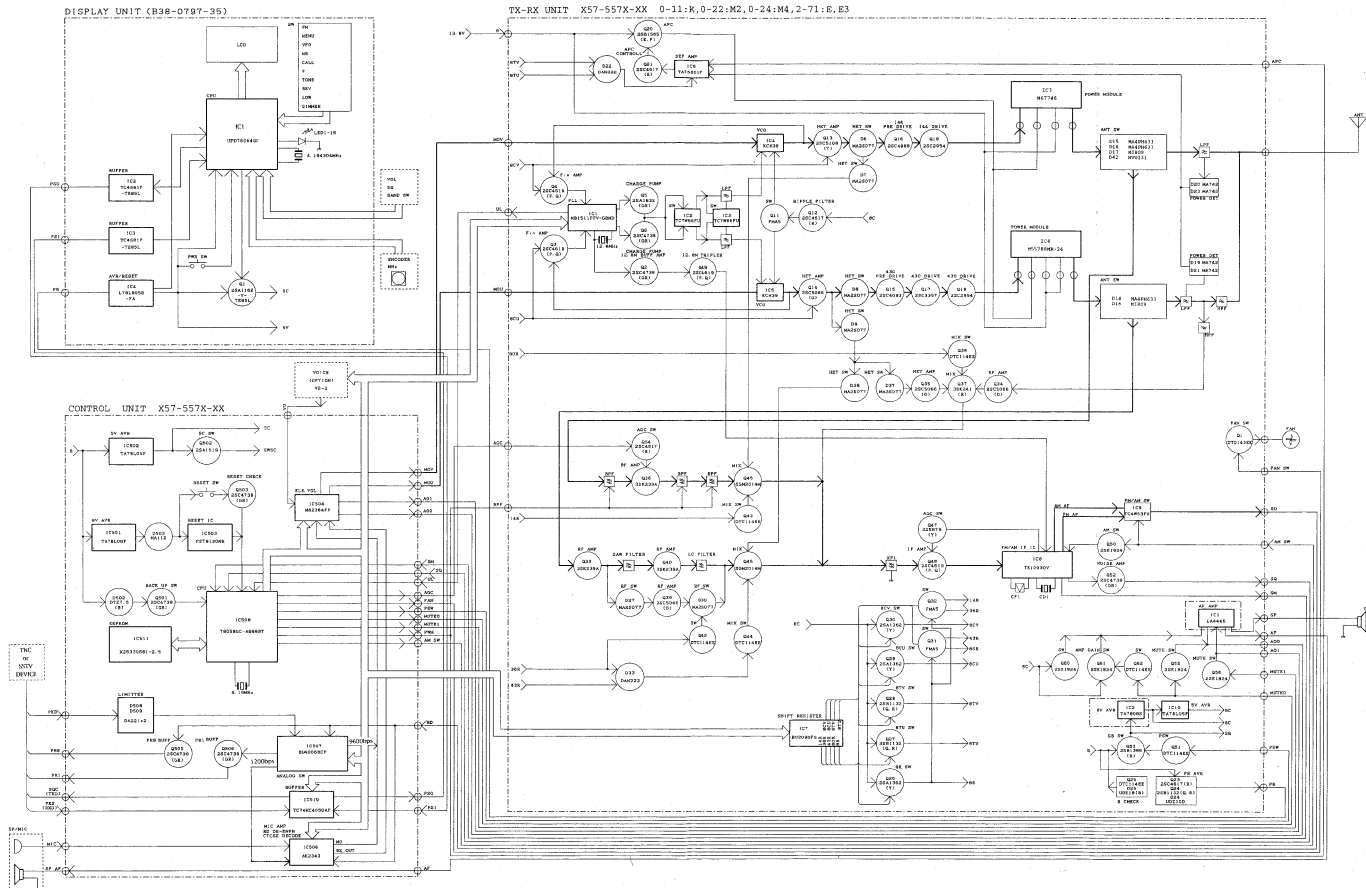
Component side
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Foil side

TX-RX UNIT (C/3) (Component side view) + (Foil side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



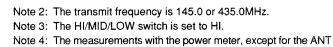
Component side
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Foil side

TM-G707A/E TM-G707A/E BLOCK DIAGRAM



TM-G707A/E

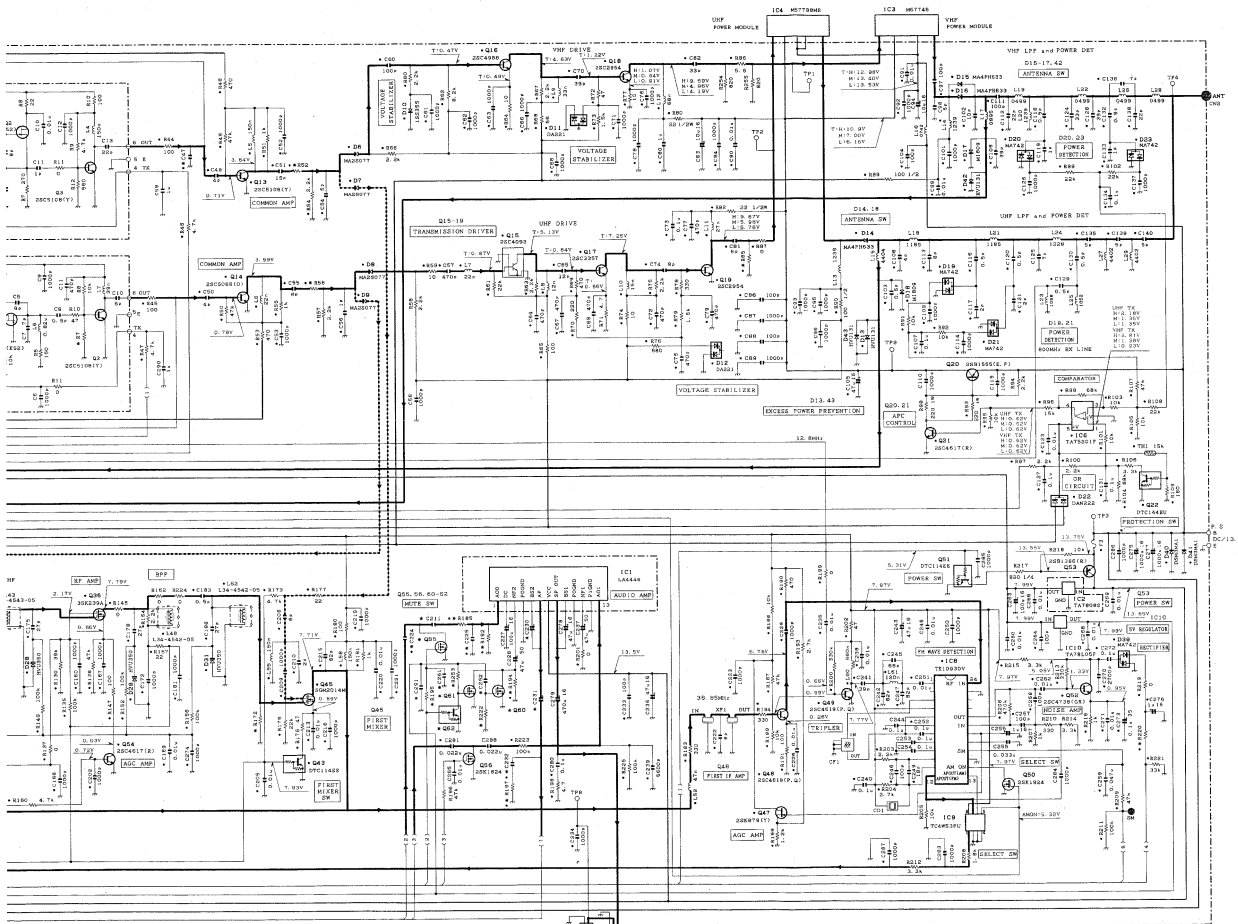
LEVEL DIAGRAM



Note 2: The AF levels were measured with an AF voltmeter when the -73dBm (50 μ V) standard signal generator signal modulated by a 1kHz modulation frequency and a 3kHz deviation was received and the AF output was adjusted to 0.63V/8 Ω by the AF VR.

TM-G707A/E

SCHEMATIC DIAGRAM

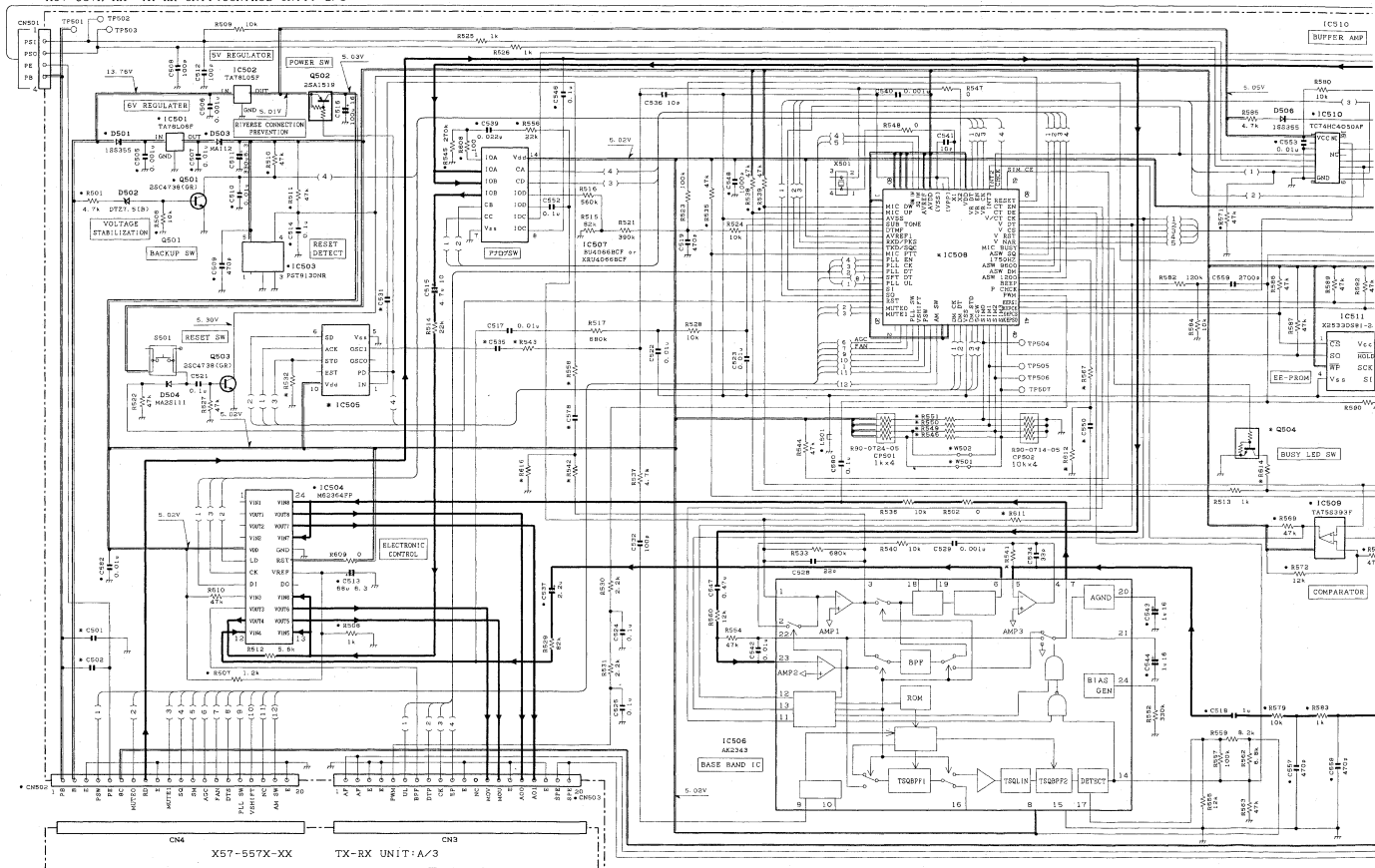


														240.41 (31) (31	
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Note) • Ref. No. : Parts of pattern 1.

SCHEMATIC DIAGRAM

X57-557X-XX TX-RX UNIT (CONTROL UNIT): B/3



(Note) ● Ref. No. : Parts of pattern 1.

TM-G707A/E

SPECIFICATIONS

Specifications are subject to change without notice due to advancements in technology.

General		VHF Band		UHF Band	
Frequency range	U.S.A/Canada	144~148MHz		438~450MHz	
	General	144~148MHz ¹		430~440MHz	
	Europe	144~146MHz		430~440MHz	
Mode		F3E(FM)			
Antenna impedance		50Ω			
Usable temperature range		- 20° C~+60° C(- 4° F~+140° F)			
Power supply		13.8V DC±15% (11.7~15.8V)			
Grounding method		Negative ground			
Current	Transmit (max.)	11.0A or less		10.0A or less	
	Receive (at 2W output)	1.0A or less			
Frequency stability (- 10° C~+50° C)		Within±3ppm			
Dimensions (WxHxD projections included)		140x54.5x205.5mm/5.51"x1.57"x7.44"			
Weight		1.2kg/2.6lb			
Transmitter					
Power output	High	50W ²		35W ²	
	Medium	Approx. 10W			
	Low	Approx. 5W			
Modulation		Reactance			
Spurious emissions		- 60dB or less			
Maximum frequency deviation		±5kHz			
Audio distortion (at 60% modulation)		3% or less			
Microphone impedance		600Ω			
Receiver					
Circuitry		Double conversion			
Intermediate frequency (1st/2nd)		38.85MHz/450kHz			
Sensitivity (12dB SINAD)		0.16μV or less:M,E 0.22μV or less:K		0.16μV or less	
Selectivity (- 6dB)		12kHz or more			
Selectivity (- 60dB)		28kHz or less			
Squelch sensitivity		0.1μV or less:M,E 0.11μV or less:K		0.1μV or less	
Audio output (8 ohms,5% distortion)		2W or higher			
Audio output impedance		8Ω			

¹ Taiwan : 144 ~ 146MHz

² Taiwan : 25W (both bands)

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